Draft
RCRA Facility Investigation Report for McDonnell Douglas, Hazelwood, Missouri Facility

Prepared for:
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Executive Summary

This document represents the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report for Corrective Action activities completed at the McDonnell Douglas (MD) facility in Hazelwood, Missouri. The Facility is subject to the requirements of Corrective Action as outlined in the final RCRA Part B Permit No. MOD000818963. This RFI Report has been prepared in accordance with Corrective Action Permit Conditions I, VI, and XIV and the Missouri Department of Natural Resources (MDNR)-approved RFI Workplan dated November 24, 1997.

This RFI Report documents the investigation activities conducted to characterize the nature of any hazardous waste/constituent releases to soil or groundwater from the five Solid Waste Management Units (SWMUs) as prescribed in the RFI Workplan. This Report will provide MDNR/USEPA personnel with MD's evaluation and conclusions regarding the RFI investigation data. Upon review and approval by MDNR, this Report will serve as a reference document and database for planning future Corrective Action activities at the Facility, as needed.

Investigative soil borings were completed at each of the five SWMUs (SWMU Nos. 17, 21, 26, 31, and 10) to characterize the nature and extent of any potential hazardous waste/constituent releases to soil or groundwater. Soil samples were collected from each of the SWMUs for selected laboratory analyses. Groundwater samples were also collected from SWMU Nos. 17 and 21 for laboratory analyses. In addition, groundwater level measurements were recorded for six temporary piezometers/ monitoring wells to evaluate the potentiometric groundwater surface beneath SWMU No. 17.

Constituent-specific investigation threshold levels (ITLs) were developed and used as a conservative set of screening levels (e.g. to determine whether a release to soil has been delineated or assess whether groundwater impacts are present). Analytical results for each SWMU were compared to these constituent-specific ITL values to evaluate the potential presence of unacceptable soil or groundwater concentrations, determine the need for further investigation, or recommend no further action. These ITLs are being used to focus the risk assessment on the relevant constituents and SWMUs of concern.

RFI results are summarized below on a SWMU-specific basis.

Summary of Soil Results for SWMU No. 17

Through the utilization of investigative soil borings, photoionization detector (PID) field screening, and soil analyses, the horizontal extent of impacted soils at SWMU No. 17 was defined. The highest volatile organic compound (VOC) [and perchloroethylene (PCE)] concentrations were detected at soil boring locations within the most interior portions of the unit (SB-1, SB-2, SB-3, and SB-4). In addition to the structural impediment of Building 51 to the north and west of the unit, delineation of

impacted soils was confirmed based on results in the unsaturated zone for soil samples from SB-5 and SB-10 to the east and SB-8 to the southwest.

Analytical results for SWMU No. 17 soil samples indicated that the most impacted intervals corresponded with materials in the saturated zone [groundwater table typically ranged from 1-6 feet below land surface (ft bls) at this SWMU]. As a result, a significant portion of the noted soil impacts are attributable to the very shallow nature of the groundwater table at SWMU No. 17.

None of the maximum detected metals concentrations from the unit exceeded their respective ITLs. As a result, metals were eliminated from further consideration with respect to soil impacts at SWMU No. 17.

Analytical results for the soil samples collected from SWMU No. 17 indicated that several VOCs exceeded their respective ITLs. As a result, the following soil-associated constituents of concern (COCs) at SWMU No. 17 were retained for evaluation in the preliminary risk assessment:

- VOCs (5): cis-1,2-dichloroethene (1,2-DCE), trans-1,2-DCE, PCE, 1,1,2-trichloroethane, and trichloroethene (TCE).

Using the soil constituent concentrations detected at SWMU No. 17, the preliminary risk assessment concluded that only PCE presents a potential health risk for the vapor inhalation exposure scenario. As a result, PCE has been retained as the only COC for further evaluation purposes as part of any future Corrective Action efforts for impacted soils. As previously stated, a significant portion of the soil impacts are best addressed as groundwater issues due to the very shallow nature of the groundwater table at SWMU No. 17.

Based on field observations, soil samples from SB-5 and SB-6 to the northeast of SWMU No. 17 were also analyzed for other non-RCRA related parameters. Soil samples from the saturated unit for SB-5 and SB-6 exhibited gasoline range organics (GRO) concentrations of 180 parts per million (ppm) and 25 ppm, and total petroleum hydrocarbon (TPH) concentrations of 1,900 ppm and 450 ppm, respectively.

Summary of Groundwater Results for SWMU No. 17

Groundwater elevation measurements were utilized to evaluate the direction and flowrate of shallow groundwater beneath SWMU No. 17. All three potentiometric surface maps demonstrate general flow of groundwater toward the east and Coldwater Creek. Very low flow gradients are also indicated.

Groundwater analytical results were utilized to characterize and delineate the extent of groundwater impacts at SWMU No. 17. Three of the sampling locations which exhibited the highest VOC concentrations were situated within and immediately downgradient to the unit (TP-1, TP-2, and

MW-5). A downgradient boundary was established to the northeast of SWMU No. 17 where no VOCs were detected from TP-3.

PCE and several degradation products including TCE and cis-1,2-DCE were detected at the highest concentrations. Groundwater samples from TP-1 and TP-2 exhibited the highest PCE concentrations of 210 ppm and 45 ppm, respectively. Located approximately 70 feet downgradient (east) from TP-1, the groundwater sample from deep well MW-5 exhibited the highest TCE concentration of 140 ppm. Vinyl chloride was detected only at MW-5 (0.25 ppm) and MW-6 (0.94 ppm).

None of the detected metals concentrations from the unit exceeded their respective ITLs. As a result, metals were eliminated from further consideration with respect to groundwater impacts at SWMU No. 17.

The groundwater sample from TP-4 to the southwest of the unit exhibited the only noteworthy field parameter values. pH and conductivity values of 12.9 and 101,000 μs/cm, respectively, indicate the presence of potentially abnormal groundwater conditions at this location.

Analytical results for the groundwater samples collected from SWMU No. 17 indicated that several VOCs exceeded their respective ITLs. As a result, the following groundwater-associated COCs at SWMU No. 17 were retained for evaluation in the preliminary risk assessment:

- VOCs (8): benzene, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, 1,1,2-trichloroethane, TCE, and vinyl chloride.

Using the groundwater constituent concentrations detected at SWMU No. 17, the preliminary risk assessment concluded that PCE, TCE, and vinyl chloride present potential health risks for the dermal absorption exposure scenario. As a result, these three VOCs (PCE, TCE, and vinyl chloride)have been retained as COCs for further evaluation purposes as part of any future Corrective Action efforts for impacted groundwater.

Summary of RFI Results for SWMU No. 21

RFI field tasks were conducted at SWMU No. 21 to characterize the nature and extent of any potential hazardous waste/constituent releases to soil or groundwater beneath the unit. Analytical results for the 12 soil samples and one groundwater sample collected from the unit were compared to constituent-specific ITL values to evaluate the potential presence of unacceptable concentrations.

None of the maximum detected concentrations for soil or groundwater from the unit exceeded their respective ITLs. Cyanide was not detected in any of the 12 soil samples or singular groundwater sample collected from SWMU No. 21. Based on PID/visual observations, the deeper soil sample from the southeast corner of SWMU No. 21 (SB-5) was submitted for additional VOC and fuel-related

analyses. This soil sample exhibited a GRO concentration of 93 ppm and a TPH concentration of 200 ppm. In addition, MD has never utilized hydrocarbon-related constituents in this area and is not aware of any potential on-site sources.

Based on the results described above, no further Corrective Actions are planned for SWMU No. 21.

Summary of RFI Results for SWMU No. 26

RFI field investigation tasks were conducted at SWMU No. 26 to characterize the nature and extent of any potential hazardous waste/constituent releases beneath the unit. Analytical results for the seven soil samples collected from the unit were compared to constituent-specific ITL values to evaluate the potential presence of any unacceptable soil concentrations. Per the RFI Workplan, soil boring SB-1 was advanced to a maximum depth of 13 ft bls in an effort to collect a groundwater sample. Groundwater was not encountered, hence groundwater samples could not be collected.

None of the maximum detected metals concentrations from SWMU No. 26 exceeded their respective ITLs. Based on these results, no further Corrective Actions are planned for SWMU No. 26.

Summary of RFI Results for SWMU No. 31

RFI field tasks were conducted at SWMU No. 31 to characterize the nature and extent of any potential hazardous waste/constituent releases to soil beneath the unit. Analytical results for the six soil samples collected from the unit were compared to constituent-specific ITL values to evaluate the potential presence of any unacceptable constituent concentrations.

None of the detected VOC, polynuclear aromatic hydrocarbon (PAH), or metals concentrations exceeded their respective ITLs. Based on these results, no further Corrective Actions are planned for SWMU No. 31.

Summary of RFI Results for SWMU No. 10

RFI field tasks were conducted at SWMU No. 10 to characterize the nature and extent of any potential hazardous waste/constituent releases to soil beneath the unit. Analytical results for the five soil samples collected from the unit were compared to constituent-specific ITL values to evaluate the potential presence of any unacceptable constituent concentrations.

None of the detected VOC, PAH, or metals concentrations exceeded their respective ITLs. Based on these results, no further Corrective Actions are planned for SWMU No. 10.

Recommendations for Future Corrective Action

Based on the results of the RFI, future Corrective Measures are only warranted for SWMU No. 17. The results from the preliminary risk assessment will be used to guide continuing Corrective Action efforts for this unit including the development of risk-based soil and groundwater cleanup standards, as needed.

MD will initially prepare a Corrective Measures Study (CMS)/Corrective Measures Implementation (CMI) Workplan to define a systematic approach for evaluating potential Corrective Measures (CMs). As specified in the Facility Permit, this CMS/CMI Workplan will be prepared within 60 days following MDNR approval of this RFI Report.

As part of the CMS/CMI Workplan, MD anticipates evaluating CMs which incorporate institutional controls. Institutional control CMs will be evaluated to address potential exposure to impacted soil and groundwater at SWMU No. 17. These CMs will focus on construction restrictions, access restrictions, etc. as a means of minimizing/eliminating contact with impacted soil and groundwater media.

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List of Acronyms and Abbreviations

ARAR	applicable or relevant and appropriate requirement
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CSF	carcinogenic slope factor
CMs	corrective measures
CMS	Corrective Measures Study
COC	constituent of concern
DCE	dichloroethene
DQL	Data Quality Level
DQO	data quality objective
EQ	Ecotoxicity Quotient
ET	Ecotox Threshold
ft bls	feet below land surface
FR	Federal Register
HASP	Health and Safety Plan
ID	internal diameter
ITL	investigation threshold level
IWTP	Industrial Wastewater Treatment Plant
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
MD	McDonnell Douglas
MDNR	Missouri Department of Natural Resources
MEK	methyl ethyl ketone
mg/kg	milligrams per kilogram
MIBK	methyl isobutyl ketone
MSD	Metropolitan St. Louis Sewer District
NCP	National Contingency Plan
PAH	polynuclear aromatic hydrocarbon
PCE	perchloroethylene
ppb	parts per billion
ppm	parts per million
PRG	Preliminary Remediation Goal
QA	quality assurance
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act

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RFA	RCRA Facility Assessment
RFD	Reference Dose
RFI	RCRA Facility Investigation
SLAPS	St. Louis Airport Site
SSL	Soil Screening Levels
SW	solid waste
SWMU	solid waste management unit
UCL95	Upper 95 percent confidence level
UCL_{95}	upper 95 percent confidence levels
USC	Unified Soil Classification
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
VSI	Visual Site Inspection
°C	degrees Celsius
μg/kg	microgram per kilogram
μs/cm	unit of conductivity

1.0 Introduction

This document represents the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report for Corrective Action activities completed at the McDonnell Douglas (MD) facility. The MD Tract I facility (Facility) is located in Hazelwood, Missouri. The Facility location is presented in Figure 1-1.

The Facility is subject to the requirements of Corrective Action as outlined in the final RCRA Part B Permit No. MOD000818963. This permit was issued by the Missouri Department of Natural Resources (MDNR) on March 5, 1997 pursuant to Section 3004(u) of RCRA. This RFI Report has been prepared in accordance with Corrective Action Permit Conditions I, VI, and XIV and the MDNR-approved RFI Workplan dated November 24, 1997.

Further guidance, as needed, was obtained from documents including the "RFI Guidance" [U.S. Environmental Protection Agency (USEPA) 530/SW89-031], "Test Methods for Evaluating Solid Waste" (SW-846), and other relevant USEPA publications. This RFI Report (Report) fully complies with the Corrective Action requirements of the Facility's Part B Permit.

1.1 Purpose

This RFI Report documents the investigation activities conducted to characterize the nature of any hazardous waste/constituent releases to soil or groundwater from the five Solid Waste Management Units (SWMUs) as prescribed in the RFI Workplan. This Report will provide MDNR/USEPA personnel with MD's evaluation and conclusions regarding the RFI data. Upon review and approval by MDNR, this Report will serve as a reference document and database for planning future Corrective Action activities at the Facility, as needed.

1.2 RFI Report Organization

This Report is divided into ten sections of text plus four appendices. A brief description of each section is presented below.

Section 1.0, **Introduction**, provides background information regarding the RCRA requirements for the Facility, purpose of this Report, and contents of this Report.

Section 2.0, **Facility Background Information**, references background information regarding the Facility and its environmental setting.

Section 3.0, **Summary of Preliminary Site Data**, summarizes the findings and results of previous evaluations/investigations for each of the five SWMUs under consideration.

Section 4.0, **RFI Objectives and Supporting Data Requirements**, summarizes the site-specific investigation objectives, identifies the target constituents and associated investigation threshold levels (ITLs) for the RFI, and describes the established data quality objectives for the investigation.

Section 5.0, **RFI Field Activities**, summarizes the RFI field activities and describes the procedures that were utilized for all field sampling and laboratory analysis tasks.

Section 6.0, **Additional RFI Activities**, describes additional RFI activities including validation of the analytical laboratory data and development of a preliminary risk assessment that were not performed as part of the field investigation tasks.

Section 7.0, **RFI Results**, summarizes the geological, hydrogeological, and analytical results of the RFI.

Section 8.0, **Preliminary Risk Assessment**, describes the potential exposure routes, health-based criteria, and risk associated with the SWMU-specific constituents of concern.

Section 9.0, **Summary and Conclusions**, summarizes the RFI investigation results and presents conclusions which address the RFI objectives.

Section 10.0, **References**, provides a list of references used within the text of this RFI Report.

Four appendices are also provided to describe associated RFI activities. Appendices to this document are identified below.

Appendix A **Soil Boring, Temporary Piezometer, and Monitoring Well Logs**
Appendix B **Analytical Laboratory Results and Data Validation Reports**
Appendix C **Exposure Assumptions for Chemical Intake Estimates**
Appendix D **Exposure and Risk Calculations**

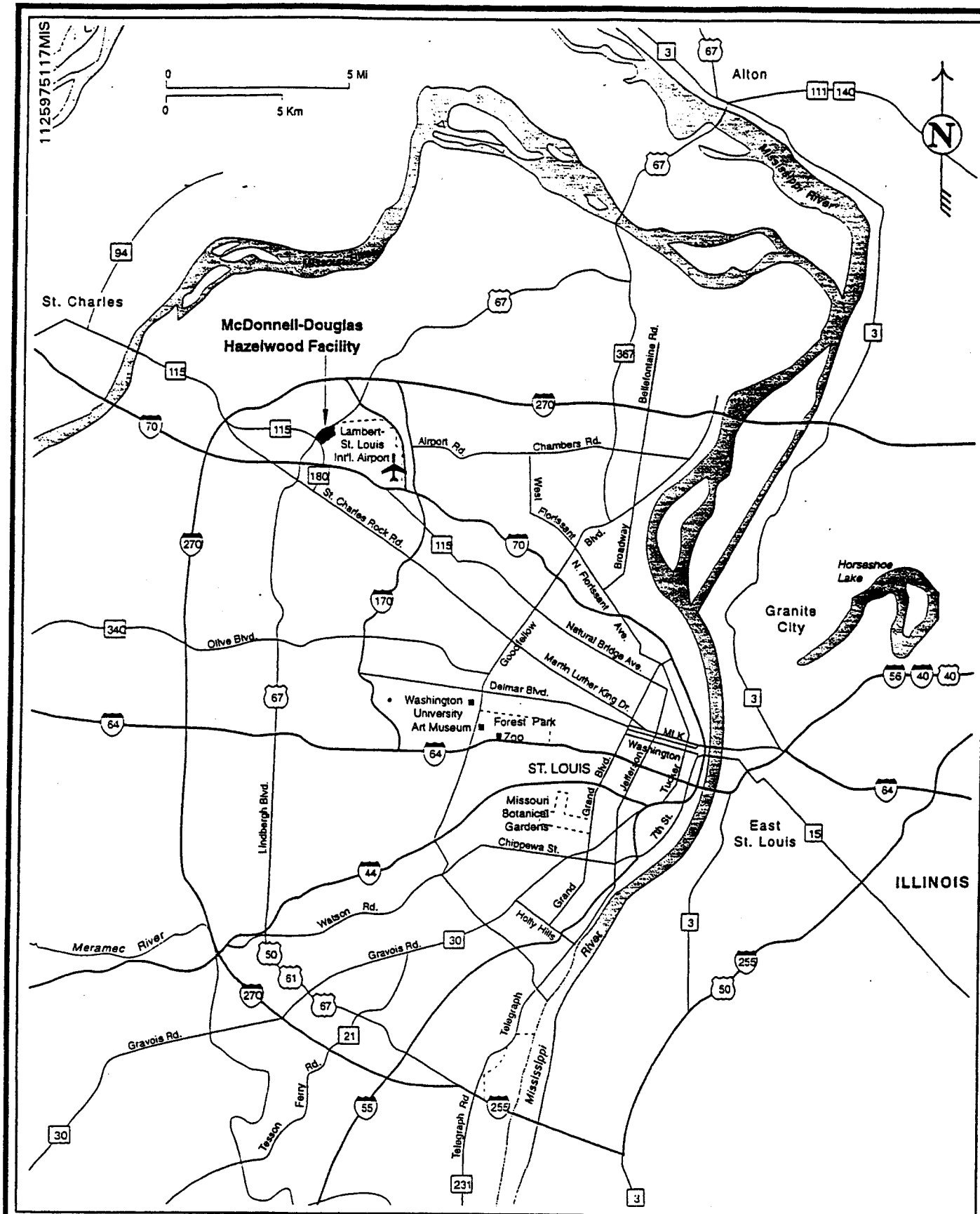


Figure 1-1
FACILITY LOCATION MAP
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL

2.0 Facility Background Information

This section of the RFI Report presents background information pertaining to the operational history and environmental setting for the Facility.

2.1 Site Description

The MD Tract I facility is located in Hazelwood, St. Louis County, Missouri. It is located within Section 5, Township 46N, Range 6E. The Facility is generally bounded on the south by Lambert St. Louis International Airport, on the east by the MD Tract II facility, on the west and northwest by Lindbergh Boulevard, and on the northeast by McDonnell Boulevard.

2.2 Facility Operations

MD manufactures combat aircraft, transport aircraft, and space systems/missiles. The primary product produced at the Facility is combat aircraft, including the F-15 Eagle, the F/A-18 Hornet, and the AV-8B Harrier. Other products produced at the Facility include the T45TS trainer, missile systems, and components for the C-17 transport plane.

Access to the Facility is strictly controlled. The Facility is surrounded by a chain-link fence and is patrolled by a security force 24 hours a day, 365 days per year. Employees and visitors must pass through security gates at the main entrance to the Facility before entering any building. The security force employs approximately 225 persons, and an on-site fire department employs approximately 30 persons.

MD began operations in 1941 and presently employs approximately 23,000 people. Currently, the Facility operates 24 hours a day, Monday through Friday, as well as periodic weekend shifts. Activities performed in support of MD operations include chemical processing, metal cutting, metal forming/grinding, degreasing, painting, aircraft assembly, aircraft fueling, and aircraft flight testing.

MD is a large quantity generator of hazardous waste. MD generates approximately 48 different waste streams that the Facility classifies as hazardous waste. The largest waste quantities generated consist of paint solids, solvent and paint waste, wastewater treatment sludge, acid waste, and caustic waste.

MD Tract I has permitted storage facilities for wastes generated both on-site and at 9 off-site MD facilities in and around the St. Louis area. MD is also a permitted transporter (ID # H-1039) for wastes from other facilities to Tract I. MD stores hazardous waste in drums, dumpsters, and tanks at various locations around the Facility. Drums of hazardous waste generated on-site are stored at one of three less-than-90-day storage areas. These areas are located on the east side of Building 2, at

Building 45E, and at Building 51. Waste solvents, paints, and oils are accumulated in drums at various satellite accumulation locations. When full, the containers are transferred to one of the less-than-90-day storage areas.

In the past, MD has operated two solvent distillation units which were certified as resource recovery units by MDNR. MD's resource recovery identification (ID) number is RR0268-A. One of the distillation units is still used to recover spent methyl ethyl ketone (MEK) and methyl isobutyl ketone (MIBK). This distillation unit is located at the painting areas in Buildings 2. Distillation bottoms are collected in 55-gallon drums and are disposed as hazardous waste. The other distillation unit was a steam stripping carbon adsorption bed unit that recovered spent perchloroethylene (PCE). This unit was removed from operation in February 1998. Additional detail regarding this distillation unit (SWMU No. 17) is provided in Section 3.1.1.

2.3 Environmental Setting

A preliminary evaluation of the environmental setting at the Facility was completed as part of the RFI Workplan to better understand the framework for migration of any potential constituent releases and the potential effects on human health and the environment. This information is presented below.

2.3.1 General Setting

The Facility is surrounded by Lambert-St. Louis International Airport on the south, commercial and industrial facilities on the west and north, and the MD Tract II Facility on the east. According to information obtained from the MDNR, Division of Geology and Land Survey, no wells are located within a 1½-mile radius of the Facility [RCRA Facility Assessment (RFA), 1995]. Surface water from the Facility drains toward Coldwater Creek which flows along the Facility's eastern boundary.

2.3.2 Geology

Subsurface geologic units in the area of the Facility include wind or lake-deposited sediments (unconsolidated deposits) overlying nearly flat-lying sedimentary bedrock formations. These deposits may be up to 100 feet thick and consist of clay, silty clay, and some sand (Lutzen and Rockaway, 1971).

Unconsolidated deposits in the area of the Facility have been delineated by previous hydrogeologic studies conducted at the Facility (ATEC, 1990 and Riedel, 1995), as well as studies conducted at the James River Paper Company (formerly Crown-Zellerbach) located approximately 1,200 feet northwest of the Facility, and the St. Louis Airport Site (SLAPS) which adjoins the Facility to the east along Coldwater Creek. The uppermost unconsolidated deposits consist of interbedded clay, silty clay, and clayey silt with some fine-grained sand and organic matter. A dense, plastic, brown to gray-green

clay unit can be present with the interbedded silty deposits. Soil sampling was conducted to a depth of approximately 30 feet at the Industrial Wastewater Treatment Plant (IWTP); results indicated the predominance of clay soils.

In areas at both facilities (MD and James River Paper Company), up to 14 feet of clayey silt or silty clay fill material is present over the unconsolidated sequence. The fill material is composed of material either excavated at the site or brought in as clean fill during plant construction and modification activities.

The uppermost bedrock encountered in the area of the Facility is the undifferentiated Pleasanton, Marmaton, and Cherokee Groups of Pennsylvanian age. Shales, siltstones, sandstones, coal beds, and thin limestone beds are the dominant lithology of these three groups. Regionally, the Pennsylvanian-age groups have a total thickness ranging from 10-300 feet.

Underlying the Pennsylvanian strata is Mississippian-age limestone. The Ste. Genevieve Formation (0-160 feet thick), St. Louis Limestone (0-180 feet thick), Salem Formation (0 to 180 feet thick), and Warsaw Formation (0-110 feet thick) are all limestone and compose the upper portion of the Mississippian-age bedrock.

2.3.3 Hydrogeology

Water supplies in the St. Louis area are obtained from the Mississippi, Missouri, and Meramec Rivers. Approximately 82 percent of the water supply is pumped from the Mississippi River, while approximately 12 percent is pumped from the Missouri River and Meramec River combined (Miller *et al.*, 1974). Aquifers exist in both the bedrock and unconsolidated deposits along the Mississippi and Missouri Rivers. These aquifers account for approximately 3 percent of the water supply (Miller *et al.*, 1974).

As stated above, the Facility is underlain by 30+ feet of low permeability clay and silt. This material has little potential to produce water. In the vicinity of Building 40, shallow groundwater was encountered at 2-8 feet below land surface (ft bls). One notable exception was apparent in the vicinity of the IWTP where shallow groundwater was encountered at approximately 30-40 ft bls.

The shallow groundwater table may be modified locally at the Facility due to the presence of buildings or parking lots. Overall, the shallow groundwater flow direction is expected to move towards Coldwater Creek or ditches draining into this creek. Given the low permeability and thickness of the unconsolidated deposits underlying the Facility, a direct connection to deeper bedrock aquifers is not expected.

2.3.4 Surface Water Hydrogeology

General surface water drainage at the Facility is by overland flow to storm sewer intakes located across the Facility or to open drainage ditches that drain to storm sewers. The storm sewers discharge into Coldwater Creek at several locations. Coldwater Creek flows northeast within an underground culvert from the southwest side of Lambert-St. Louis International Airport, across the central portion of the airport, and the easternmost part of Tract I South. The creek flows within an open culvert north of Banshee Road along the eastern boundary of Tract I North. Coldwater Creek then flows northeast within this open culvert for several miles until it rejoins its original channel. The creek eventually discharges into the Missouri River. At its closest point, the Missouri River is approximately 3 miles to the northwest of the Facility.

Presently, approximately 90-95 percent of the surface area is covered with buildings, paved streets, paved parking lots, tankfarms, and docks. Many of the aboveground structures associated with discontinued processes have been demolished, although concrete at or below grade remains. An extensive network of utilities including potable and service water lines, storm sewers, sanitary sewers, and other utilities (typical of an industrial facility) remains underground even though significant portions are no longer used, or are isolated from active lines.

2.4 Additional Sources of Background Information

Historic evaluations of the geology and hydrogeology at the Facility were conducted as part of previous investigations to better understand the framework for migration of any potential constituent releases and the potential effects on human health and the environment. A prior report entitled McDonnell Douglas Corporation RCRA Closure Activities, Building 14: Sludge Holding Tank Site (Riedel Environmental Services, Inc., 1995) should be referenced for additional information pertaining to the environmental setting at the Facility.

3.0 Summary of Preliminary Site Data

This section summarizes results acquired from prior site evaluations. These results assisted in the development of the investigation approach for each SWMU in order to attain the RFI objectives. Figure 3-1 displays the locations of the SWMUs that were investigated in the RFI. In addition, this section of the RFI Report provides background information pertaining to the operational history and current usage for each of the five SWMUs under consideration.

In compliance with Corrective Action requirements for the Facility, MD submitted the RFI Workplan and associated support plans [Health and Safety Plan (HASP) and Quality Assurance Project Plan (QAPP)] to MDNR for initial review in May 1997. The Workplan provided a summary of existing Facility conditions and the proposed procedures/methodologies for the RFI activities. Subsequent revisions were made to the Workplan based on comments received from MDNR. Approval of the revised November 1997 document was provided in January 1998. Supplemental RFI activities were subsequently proposed/approved in April 1998 to enhance delineation of chemical constituents at SWMU No. 17 (Transfer Area for Recovered PCE).

As set forth in the RFI Workplan, prioritized investigation activities were conducted at five SWMUs:

- SWMU No. 17: Transfer Area for Recovered PCE;
- SWMU No. 21: Industrial Wastewater Treatment Plant (IWTP) Area;
- SWMU No. 26: Former Less-than-90-Day Storage Building;
- SWMU No. 31: Waste Oil Tank at Building 22; and
- SWMU No. 31: Waste Oil Tank at Building 5.

3.1 SWMU No. 17: Transfer Area for Recovered PCE

3.1.1 Description of SWMU and Waste Management Activities

SWMU No. 17 is a continuously paved area outside of Building 51 that was used for tank transfer activities involving recovered perchloroethylene (PCE). MD initially began using this unit for PCE recovery operations on June 22, 1993. The unit contained a series of tanks which were utilized to store the separated PCE stream while being transferred from a 55-gallon tank to a 750-gallon holding tank, and finally into various 350-gallon portable tanks for off-site shipment. The distillation unit was removed from operation in February 1998; MD no longer uses this area for PCE recovery purposes.

The referenced waste management activities were used to recover PCE from maskant that is applied to sections of various metal parts. The maskant product is a mixture of rubber-like polymers in a PCE carrier or thinner. This paint-like mixture is applied to metal parts and allowed to dry. As the parts dried, the PCE evaporated and was captured in a vapor recovery hood. Vapors from the hood were

discharged to a carbon adsorption unit, where the PCE vapors were separated from the air and then transferred to a condenser, where it was recovered. The recovered PCE flowed to a 55-gallon receiving tank that cycled it to the 750-gallon holding tank. Recovered PCE was then transferred from the 750-gallon holding tank into 350-gallon portable tanks for off-site shipment.

Activated granular carbon represented the only residue generated from the PCE recovery process. Spent carbon was shipped off-site for incineration at approximate 5-year intervals.

3.1.2 Release Controls

Release controls at this unit include a stainless steel spill collection basin (12-inch sidewall height) for the 350-gallon receiving tank and a pre-fabricated containment building which prevents rainwater from reaching the unit. In addition, the unit and the immediately surrounding area have been continuously paved throughout the active waste management period to prevent any direct contact with underlying soil. The low permeability clay material throughout this area also serves to minimize the potential impact of any subsurface release.

According to the RFA, evidence of past spills was observed in the transfer area during the Visual Site Inspection (VSI). As a result, the RFA concluded that the asphalt around the transfer area had been damaged.

3.1.3 Previous Findings

Limited soil sampling activities were conducted as part of the RFA to preliminarily assess whether any releases have occurred from this unit. Two shallow soil samples (0-12 inches bls and 12-24 inches bls) were collected from one soil boring for off-site laboratory analysis.

Four VOC constituents including PCE at 760-290,000 micrograms per kilogram (μg/kg), acetone at 88 to 140 μg/kg, total xylenes at 11-32 μg/kg, and 1,2-dichloroethene (1,2-DCE) at 14-44 μg/kg) were detected in the samples and sample duplicates acquired from this unit. The shallower sample exhibited the highest PCE concentration of 290,000 μg/kg, while the field duplicate for the same depth interval exhibited a lower PCE concentration of 40,000 μg/kg.

Inorganic constituents were detected in the samples acquired from this unit. However, arsenic and selenium represent the only inorganic constituents which exceeded U.S. Geological Survey (USGS)-based regional background levels. Arsenic was detected in the deeper sample at a concentration of 46.3 milligrams per kilogram (mg/kg), while selenium was detected in the shallower sample at a concentration of 4.02 mg/kg.

3.2 SWMU No. 21: Industrial Wastewater Treatment Plant (IWTP) Area

3.2.1 Description of SWMU and Waste Management Activities

SWMU No. 21 consists of several IWTP sludge settling and equalization tanks. Principal components of the IWTP include aeration tanks, sludge settling tanks (S1 through S4), equalization tanks (E1 through E3), the sludge holding tank, and the filter press.

MD purchased the IWTP from the Metropolitan St. Louis Sewer District (MSD), converted it for treatment of MD-specific wastewaters, and began operations in July 1970. Waste management activities at this unit involve the pretreatment of rinsewater/overflows from chemical processing and electroplating operations. Hazardous waste codes assigned to the chemical processing solutions include D002, D004, D005, D006, D007, D008, and D010. MD continues to use the IWTP for wastewater treatment purposes.

The sludge settling and equalization tanks are in-ground, open top units and possess 4-inch reinforced concrete floors and 6-inch concrete walls. The tanks are connected in series from S-1 through E-3. The S-series tanks are settling tanks where sludge settles out and is separated from the water. The sludge from these tanks is pumped to the sludge collection tank. The E-series tanks are for pH adjustment (E-1) and additional settling.

3.2.2 Release Controls

Release controls for this unit include the low permeability clay material throughout this area which serves to minimize any subsurface release. The depth to groundwater in this area (30-40 ft bls) would also serve to minimize the impact of any potential release.

3.2.3 Previous Findings

Tanks E-2 and E-3 within SWMU No. 21 were drained in October 1993 to repair cracks that had formed in the floor. As a result, limited soil sampling activities were conducted as part of the RFA to preliminarily assess any releases from this unit. One saturated soil sample and one groundwater sample were collected from SWMU No. 21 at respective depths of approximately 22 and 35 ft bls.

VOCs were not detected in the soil sample acquired from this unit.

Inorganic constituents were detected in the soil sample acquired from this unit. However, none of the inorganic levels exceeded USGS-based regional background levels. Cyanide was detected in the soil sample at a concentration of 0.162 mg/kg.

The groundwater grab sample was only analyzed for metals due to insufficient sample volume. Various inorganic constituents were detected in this sample. However, based on the turbidity and unfiltered nature of the sample, the inorganic levels are more likely to be associated with suspended silt and clay particles, rather than being representative of aqueous phase metals.

During the RFA, a visual inspection of the sludge holding tank did not reveal any defects or evidence of wear in the liner or seams. Additional findings derived from the RCRA closure activities for the sludge holding tank are summarized in the following section.

3.2.4 Associated Closure Activities for Sludge Holding Tank (SWMU #3)

As part of the RCRA closure activities for the sludge holding tank, two soil sampling events were conducted (May 1994 and July 1995). During the May 1994 sampling event, three soil samples were collected from one soil boring in the vicinity of the sludge holding tank. Each of the three soil samples contained detectable levels of cyanide (0.16, 0.35, and 5.42 mg/kg).

Based on the reported concentration of 5.42 mg/kg cyanide in Sample DB-1 (13.9-18.5 feet), an additional investigation was conducted in July 1995. During this investigation, four soil borings were completed in the vicinity of the sludge holding tank and samples were collected at approximately the same depth as the bottom of the tank. An additional background sample from the southwest corner of the unit was also collected for analysis. Laboratory analytical results confirmed low levels of cyanide (0.047-0.116 mg/kg) that were all below the background level of 0.201 mg/kg. As a result, detected cyanide levels in the IWTP area were not indicative of a release from the IWTP unit.

3.3 SWMU No. 26: Former Less-than-90-Day Storage Building

3.3.1 Description of SWMU and Waste Management Activities

SWMU No. 26 consists of a pre-fabricated containment building that was located outside of Building 40 from November 1990 through July 1993. The containment structure was used as a less-than-90-day storage unit for 55-gallon drums of waste solvents, paints, and oils generated from operations inside Building 40.

In July 1993, the containment structure was replaced with a new pre-fabricated containment building that has since been used for the storage of virgin products associated with equipment use and maintenance activities (e.g., oil and gasoline).

3.3.2 Release Controls

Current release controls at this unit include a pre-fabricated containment building which prevents rainwater from contacting the storage drums. The area immediately surrounding the unit has been continuously paved throughout the active waste management period to prevent any potential spills from reaching the underlying soil.

According to the RFA, pavement stains and cracking were observed during the VSI which suggested that a past release from this unit had occurred. The low permeability clay material throughout this area serves to minimize the potential impact of any subsurface release. A visual inspection of the containment structure that was previously used outside Building 40 verified the integrity of its spill containment system; no evidence of staining or corrosion was observed.

3.3.3 Previous Findings

Limited soil sampling activities were conducted as part of the RFA to preliminarily assess whether any releases have occurred from this unit. Four shallow soil samples were collected from two soil borings for off-site laboratory analysis. The samples were collected from shallow depth intervals of 0-12 inches bls and 12-24 inches bls.

VOCs were not detected in any of the samples acquired from this unit.

Inorganic constituents were detected in the samples acquired from this unit. However, arsenic (35.6-44.8 mg/kg) was the only inorganic constituent that exceeded the USGS-based regional background levels.

3.4 SWMU No. 31: Waste Oil Tank at Building 22

3.4.1 Description of SWMU and Waste Management Activities

SWMU No. 31 previously consisted of a 740-gallon steel aboveground storage tank located adjacent to Building 22. The tank was used as a less-than-90-day storage unit for waste oil generated from maintenance activities in Building 22. MD is currently utilizing two double-walled tanks inside of a spill containment building for waste management activities in this area.

3.4.2 Release Controls

At the time of the VSI, release controls at this unit included a supporting asphalt pad for the tank and a 6-inch asphalt berm around the perimeter of the pad for spill containment purposes. The unit and the immediately surrounding area have been continuously paved throughout the active waste management period.

According to the RFA, evidence of a tank overflow was observed during the VSI on the supporting asphalt pad. In addition, minor cracks were noted along the asphalt pad. The low permeability clay material throughout this area serves to minimize the potential impact of any subsurface release.

In 1996, release controls at this unit were enhanced to include a spill collection basin surrounding the tank and a pre-fabricated containment building which prevents rainwater from reaching the unit.

3.4.3 Previous Findings

Limited soil sampling activities were conducted as part of the RFA to preliminarily assess whether any releases have occurred from this unit. Four shallow soil samples were collected from two soil borings for off-site laboratory analysis. The samples were collected from shallow depth intervals of 0-12 inches bls and 12-24 inches bls.

PCE was the only VOC constituent detected in the soil samples acquired from this unit. Two soil samples exhibited PCE concentrations of 10 μg/kg and 15 μg/kg which slightly exceeded the associated detection limit. PCE was detected in the deeper interval for the sample closest to the tank and in the shallower interval for the sample located further away.

Two polynuclear aromatic hydrocarbon (PAH) constituents including fluoranthene (520 μg/kg) and pyrene (500 μg/kg) were detected in one of the samples acquired from this unit. These PAHs were only detected in the deeper interval of the sample located closest to the tank.

Inorganic constituents were detected in the samples acquired from this unit. However, arsenic, cadmium, and selenium represent the only inorganic constituents which exceeded USGS-based regional background levels. Arsenic was detected in all four samples (31.7-40.1 mg/kg), cadmium was detected in the shallower sample closest to the tank at a concentration of 1.86 mg/kg, and selenium was detected in the same sample interval and location at a concentration of 3.57 mg/kg.

3.5 SWMU No. 10: Waste Oil Tank at Building 5

3.5.1 Description of SWMU and Waste Management Activities

SWMU No. 10 is a 375-gallon steel aboveground storage tank located adjacent to Building 5. The tank has been used since December 23, 1988 as a storage unit for waste oil that has been separated from condensate of an oil-lubricated, steam-operated air compressor inside Building 5. MD continues to use this unit for waste management activities.

The tank is filled automatically from an oil-water separator that receives the discharge stream from the air compressor. Once the tank becomes full, waste oil is subsequently transferred from the tank to a mobile 1,000-gallon tank at approximate 3-5 month intervals. The mobile tank is then moved to the permitted hazardous waste storage area (Scrap Dock Shelter, SWMU No. 8) where the waste oil is transferred to a tanker truck for transport to an off-site fuel blending facility.

3.5.2 Release Controls

Release controls at this unit include the ½-inch tank construction which prevents leaks and enables easy detection of any overflow condition. Supplemental release controls include an asphalt pad underlain with concrete and a 4-inch asphalt berm around the perimeter of the pad for spill containment purposes. In addition, the unit and the immediately surrounding area have been continuously paved throughout the active waste management period to prevent any potential spills from reaching the underlying soil.

According to the RFA, evidence of past spills was observed during the VSI on the supporting asphalt pad. The low permeability clay material throughout this area serves to minimize the potential impact of any subsurface release.

3.5.3 Previous Findings

Limited soil sampling activities were conducted as part of the RFA to preliminarily assess the impacts of any past releases from this unit. Four shallow soil samples were collected from two soil borings for off-site laboratory analysis. The samples were collected from shallow depth intervals of 0-12 inches bls and 12-24 inches bls.

PCE was the only VOC constituent detected in one of the four soil samples acquired from this unit. The sample from the shallower sample located closest to the tank exhibited a PCE concentration of 50 μg/kg. However, PCE was also detected in the field blank for the same location.

Eleven PAH constituents including anthracene; benzo(a)anthracene; benzo(k)fluoranthene; benzo(g,h,i)perylene; benzo(a)pyrene; chrysene; dibenzo(a,h)anthracene; fluoranthene; indeno (1,2,3-cd)pyrene; phenanthrene; and pyrene were detected in the samples acquired from this unit.

Inorganic constituents were detected in the samples acquired from this unit. However, arsenic was the only inorganic constituent that exceeded USGS-based regional background levels. The sample from the deeper sample located closest to the tank exhibited an arsenic concentration of 37.5 mg/kg.

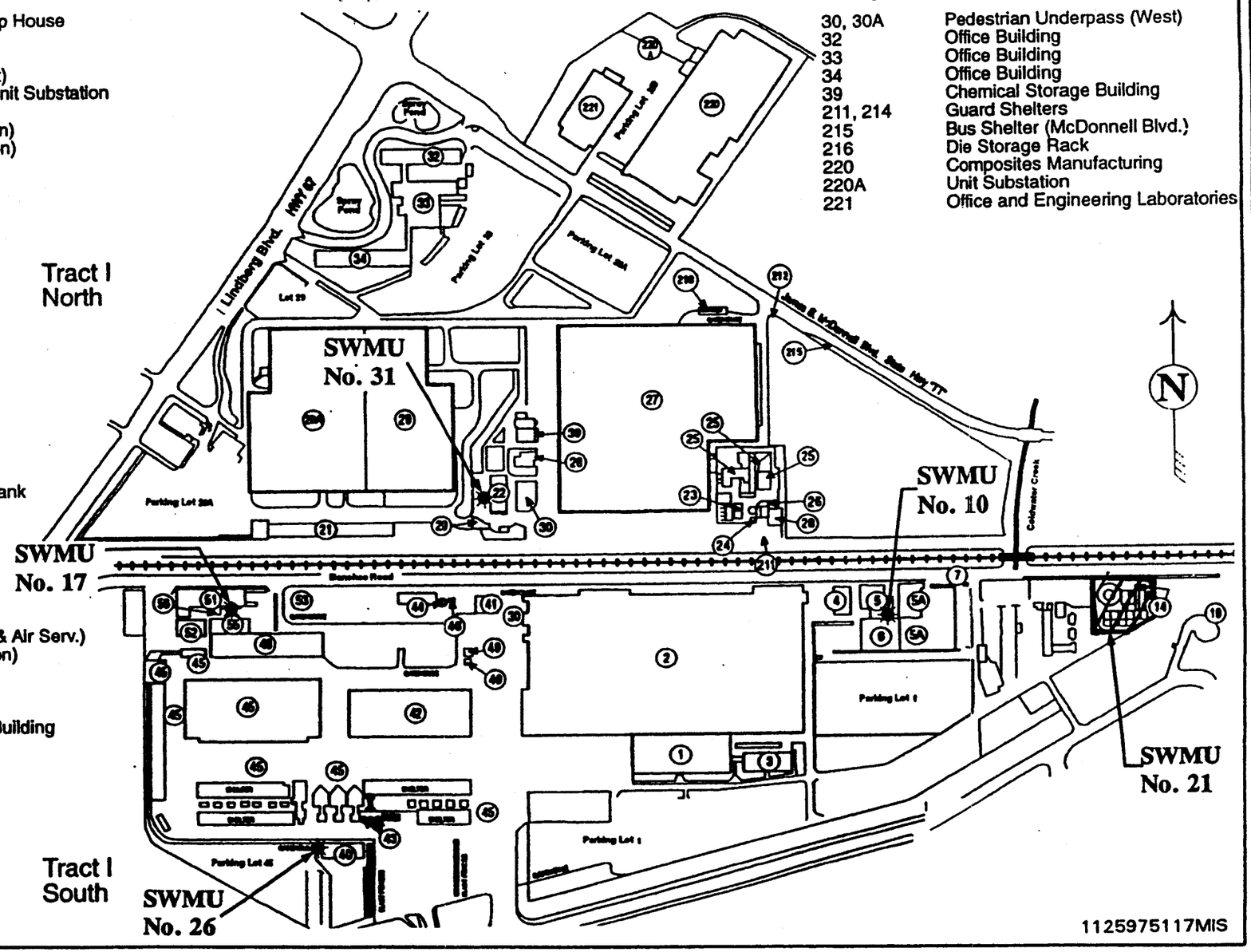
3.6 Summary of Previous Facility Investigations

Previous Facility investigations/evaluations indicated that potential releases have occurred from various SWMUs at the Facility. Encountered constituents varied according to the plant-specific process at or adjacent to each SWMU. Process-related VOCs, waste oil-related PAHs, various metals, and cyanide were the most frequently detected constituents. Various release controls have already been implemented at the Facility including acquisition of new waste storage units, enhancement of spill containment features, and completion of paving improvements.

Based on these results, the RFI was designed to delineate the nature and extent of potential releases at five SWMUs that were not fully characterized in previous Facility evaluations.

Building No.	Description
20, 30A	Electrical Substation & Pump House
22	Garage Building
23	Cooling Tower
24	Pedestrian Underpass (East)
25, 25A	Wind Tunnel (Low Speed) Unit Substation
25B	V/STOL Test Facility
26	Pump House (Fire Protection)
26A	Storage Tank (Fire Protection)
27	Manufacturing Building
28	Fuel System Laboratory
29	Fabrication Building
29A	Composites Manufacturing

Building No.	Description
30, 30A	Pedestrian Underpass (West)
32	Office Building
33	Office Building
34	Office Building
39	Chemical Storage Building
211, 214	Guard Shelters
215	Bus Shelter (McDonnell Blvd.)
216	Die Storage Rack
220	Composites Manufacturing
220A	Unit Substation
221	Office and Engineering Laboratories



Building No.	Description
1	Administrative Offices
2	Manufacturing Building
3	Office Annex Building
4	Office Building
5	Boiler House
5A, B	Sprinkler System Storage Tank
6	Maintenance Building
7	Gate House
19	Compass Rose
40	Ramp Service Building
41	Chemical Storage Building
42	Production Hangar
43	Ramp Utilities Building
43A, B, C, D	Storage Tanks (Ramp H_2O & Air Serv.)
44	Pump House (Fire Protection)
45	Production Hangar
45A, B, F, G	Ramp Shelters
45C, D, E, L	Hush Houses
45J	Radar Cooling Equipment Building
45K	Fuel System Work Facility
45L	Hush House #4
46	Fuel-Filter Building
48	Ramp Paint Booths
49, 49A	Water Check Facility
51	Manufacturing Building
52	Manufacturing Building
53	Boiler House
55	Service Building ,
55A	Storage Building
56	Boiler House

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Figure 3-1
LAYOUT OF FACILITY AND SWMU LOCATIONS
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL

4.0 RFI Objectives and Supporting Data Requirements

This section describes the objectives of the RFI activities. Specifically, it reviews the objectives of the RFI, identifies data needed to meet these objectives, and describes the overall approach that was followed to obtain these data. An overview and justification of the RFI approach are also provided, as well as a discussion of the role of ITLs in the project. In addition, this section summarizes specific data quality objectives selected for the RFI.

4.1 Project Objectives

Consistent with the terms of the Corrective Action Permit conditions, the RFI is designed to address the following project objectives:

1) describe the nature and extent of any releases of hazardous waste/constituents from the five previously referenced SWMUs; and
2) gather necessary data to support future Corrective Action requirements (if necessary).

Completion of critical project elements and achievement of the specific RFI objectives requires the identification, collection, and evaluation of site-specific and other local data. The results of the RFI will be utilized in developing appropriate preliminary soil and groundwater screening levels, where appropriate, for the Facility.

For site locations and depths where soil or groundwater concentrations exceed the appropriate preliminary screening levels and a risk analysis shows a threat being posed to human health or the environment, MD will pursue the development of applicable Corrective Measures alternatives. For Facility locations and depths where constituent concentrations do not exceed the appropriate preliminary screening levels, MD will remove these locations from further Corrective Action requirements, thereby conserving resources which would otherwise have been expended on unnecessary activities. Such an approach will allow MD to focus its attention and efforts more rapidly and practically on any significant environmental issues instead of perceived ones.

MD believes that the RFI scope, upon completion, will adequately characterize releases of hazardous waste/constituents as required by the Part B Permit and will achieve the objectives outlined above. Any supplemental investigation activities will be designed to satisfy delineation criteria and provide data necessary for development of alternatives under a Corrective Measures Study (CMS).

4.2 Data Needs and Usage

An investigation to delineate the nature and extent of any releases at the Facility requires various types and amounts of information. Specific investigation approaches, methodologies, and data are required

to facilitate the investigation process. This section of the document summarizes the general strategy presented in the RFI Workplan for collection of the data needed to achieve the investigation objectives at the Facility.

Based on a review of previous investigation results and an evaluation of site-wide conditions, sampling plans were prepared to delineate the nature and extent of any releases. Soil and groundwater sampling locations were selected in and around the SWMUs at locations where constituents of concern (COCs) were most likely to be found based on historical knowledge, prior investigation results, hazardous wastes/constituents managed at the various SWMUs, and field screening criteria (visual observations and portable instrument screening). In accordance with the approved RFI Workplan, selected samples were collected and submitted for laboratory analyses.

In addition, groundwater monitoring activities were conducted at SWMU No. 17 to determine groundwater flow direction and gradients. Monitoring results were used to evaluate potential migration of any impacted groundwater at this unit.

4.3 Data Quality Objectives

The intended use of the various data types was evaluated to establish appropriate data quality objectives (DQOs). A summary of this evaluation is provided below.

As described in the MDNR-approved RFI Workplan, the following DQO levels were deemed appropriate:

1) DQO Level I was deemed appropriate to conduct screening and acquire data for basic site characterization (e.g., pH, temperature, specific conductance, water level elevations, physical descriptions, PID readings, and other similar geologic/hydrogeologic information). Specifically, the data acquired under DQO Level I were used to
   - detect changes in groundwater characteristics.
   - develop groundwater elevation contour maps and evaluate groundwater flow gradients,
   - describe basic physical properties of investigated media, and
   - verify adequate purging of monitoring wells.
2) DQO Level III was deemed appropriate for soil and groundwater sample analyses. The data acquired under DQO Level III was used to characterize constituent concentrations in various media and delineate the nature/extent of any releases of hazardous wastes/constituents. These data may also be used to determine soil/groundwater clean-up objectives, support a risk assessment, and support engineering evaluations necessary to select and design Corrective Measures, if required.

4.4 Investigation Threshold Levels (ITLs)

ITLs are commonly developed and used at both Corrective Action and Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) sites to determine whether field investigations should proceed beyond an initial phase. In fact, this concept is inherent to both the proposed RCRA Subpart S rule (as well as other proposed rulemakings) and guidance being developed and implemented under the Corrective Action and Superfund programs. MD believes that such a concept is appropriate for the Facility and has developed conservative values against which the RFI data have been evaluated.

This section identifies these conservative values (ITLs) that have been used to determine the need for further investigation or to recommend no further action. ITLs were utilized as a comparative baseline for SWMU-specific analytical results (e.g. to determine whether a release to soil has been delineated or assess whether groundwater impacts are present). These ITLs are being used to focus the risk assessment on the relevant constituents and SWMUs of concern.

For the purposes of this RFI, ITLs represent values which incorporate both risk-based action levels and site-specific background levels. As a result, the comparative process for analytical results is simplified.

ITLs were derived for soils from USEPA Soil Screening Levels (SSLs), as of July 1996. For ubiquitous metals, the background concentration was utilized as the ITL if greater than the SSL criteria. Background values were derived from USGS-based regional background soil concentrations for St. Louis County (Geochemical Survey of Missouri, USGS, 1984). For instances where the SSLs or background values were unavailable, alternative USEPA Region 5 Data Quality Levels (DQLs) or Region 9 Preliminary Remediation Goal (PRG) values were used.

ITLs for groundwater were derived in a similar manner using non-zero MCLGs, MCLs, or HBLs derived for the SSLs. For ubiquitous metals, the background concentration was utilized as the ITL if greater than the SSL-based criteria. Site-specific background groundwater conditions were derived from a concurrent MD sampling event. Per the RFI Workplan, groundwater samples were collected from two monitoring wells (MW-A1 and MW-A8) along the western corridor of the Facility (see Figure 4-1) and submitted for off-site metals analysis. Analytical results for the background monitoring wells and associated statistical mean values are summarized in Table 4-1. For instances where the SSL-based criteria or background values were unavailable, alternative USEPA Region 5 DQLs or Region 9 PRG values were used.

Soil and groundwater ITLs are presented in Tables 4-2 and 4-3, respectively, for the constituents detected in the RFI. These tables also include the relevant SSL-based criteria, alternative risk-based reference values (e.g., DQLs, PRGs), and regional/site-specific background levels, as appropriate.

TABLE 4-1

Summary of Mean Constituent Concentrations for Groundwater Samples from Background Monitoring Wells McDonnell Douglas RFI

CONSTITUENT	UNITS	BACKGROUND WELL NO. AND MEAN CONSTITUENT CONCENTRATIONS		
		MW-A1	MW-A8	MEAN
Metals/Inorganics (Total)				
Arsenic	mg/L	0.040	0.229	0.135
Barium	mg/L	1.990	3.050	2.520
Cadmium	mg/L	<0.005	<0.005	<0.005
Chromium	mg/L	0.120	0.360	0.240
Lead	mg/L	0.059	0.349	0.204
Mercury	mg/L	<0.0002	<0.0002	<0.0002
Selenium	mg/L	<0.05	<0.05	<0.05
Metals/Inorganics (Filtered)				
Arsenic	mg/L	0.021	0.020	0.021
Barium	mg/L	0.504	0.383	0.444
Cadmium	mg/L	<0.005	<0.005	<0.005
Chromium	mg/L	<0.01	<0.01	<0.01
Lead	mg/L	<0.005	<0.005	<0.005
Mercury	mg/L	<0.0002	<0.0002	<0.0002
Selenium	mg/L	<0.005	<0.005	<0.005

Footnotes:

1 Background Groundwater Concentrations are represented by the following statistical values:
- For parameters detected within the background groundwater samples, the statistical value is the mean background concentration.
- For parameters NOT detected within the background groundwater samples, the statistical value presented is the detection limit.

Table 4-2
Determination of Investigation Threshold Levels (ITLs) for Soils (values in ug/kg except metals)
RCRA Facility Investigation
McDonnell Douglas Facility
Hazelwood, Missouri

Constituent	MD Investigation Threshold Level (ITL) for Soil (1)	CERCLA Soil Screening Levels (SSLs) (2)	EPA Region V Data Quality Levels (3)	EPA Region IX Preliminary Remediation Goals (4)	USGS-Based Regional Background Concentration (5)
VOLATILE ORGANIC COMPOUNDS (VOCs)					
Acetone	16,000	16,000	9,200,000	--	--
Benzene	30	30	2,700	--	--
2-Butanone	5,200	--	5,200	4,200,000	--
1,1-Dichloroethane	23,000	23,000	400,000	--	--
1,1-Dichloroethene	60	60	70	--	--
cis-1,2-Dichloroethene	400	400	--	--	--
trans-1,2-Dichloroethene	700	700	--	--	--
Ethylbenzene	13,000	13,000	58,000	--	--
Methylene chloride	20	20	22,000	--	--
Tetrachloroethene	60	60	22,000	--	--
Toluene	12,000	12,000	280,000	--	--
1,1,1-Trichloroethane	2,000	2,000	280,000	--	--
1,1,2-Trichloroethane	20	20	--	--	--
Trichloroethene	60	60	7	--	--
Vinyl Chloride	10	10	--	--	--
Xylenes, Total	200,000	200,000	99,000	--	--
Gasoline Range Organics	--	--	--	--	--
Total Extractable Hydrocarbons	--	--	--	--	--
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)					
Anthracene	12,000,000	12,000,000	19,000.00	--	--
Benzo(a)anthracene	900	900	660.00	--	--
Benzo(b)fluoranthene	900	900	660.00	--	--
Benzo(g,h,i)perylene	660	--	660.00	--	--
Benzo(a)pyrene	90	90	660.00	--	--
Chrysene	88,000	88,000	--	--	--
Dibenz(a,h)anthracene	90	90	120.00	--	--
Fluoranthene	3,100,000	3,100,000	1.6E+06	--	--
Indeno(1,2,3-cd)pyrene	900	900	1,200.00	--	--
Phenanthrene	660	--	660	NA	--
Pyrene	2,300,000	2,300,000	1.2E+06	--	--
METALS/CYANIDE (mg/kg)					
Arsenic	77.0	0.4	0.97	--	77.0
Barium	1750.0	1600.0	5,500.00	--	1750.0
Cadmium	8.0	8.0	39.00	--	ND
Chromium	85.0	38.0	940.00	--	85.0
Lead	400.0	400.0	500.00	--	85.0
Mercury	2.0	2.0	23.00	--	0.97
Selenium	5.0	5.0	390.00	--	2.5
Silver	34.0	34.0	390.00	--	NA
Total Cyanide	40.0	40.0	1,600.00	--	-

Listed constituents were detected in the RFI.
-- Applicable value not available.

Footnotes:

1 Investigation Threshold Levels (ITLs) for soils were primarily derived from USEPA Soil Screening Levels (July 1996). For ubiquitous PAHs and metals, the background concentration was utilized as the ITL if greater than the SSL criteria. For instances where the SSLs or background values were unavailable, alternative USEPA Region V Data Quality Levels, Region IX Preliminary Remediation Goal (PRG) values were used as referenced below. USGS Regional Background concentrations for metals.

2 Soil Screening Levels, July 1996. Value represents most conservative of 3 exposure pathways including ingestion, inhalation, and migration to groundwater (DAF of 20).

3 Alternative value acquired from USEPA Region V Data Quality Levels, December 1995.

4 Alternative value acquired from EPA Region IX Preliminary Remediation Goals, August 1, 1996.
- Levels for migration to groundwater (GW) pathway based on dilution and attenuation factor of 10
- Levels for metals based on a pH = 8.0

5 USGS-Based Regional Background Soil Concentrations (1984) for St. Louis County.

Table 4-3
Determination of Investigation Threshold Levels (ITLs) for Groundwater (ug/l except metals)
RCRA Facility Investigation
McDonnell Douglas Facility
Hazelwood, Missouri

Constituent	MD Investigation Threshold Level (ITL) for Groundwater (1)	CERCLA Soil Screening Levels (SSLs) (2)	EPA Region V Data Quality Levels (3)	EPA Region IX Preliminary Remediation Goals (4)	Background Groundwater Concentration (5)
VOLATILE ORGANIC COMPOUNDS (VOCs) (ug/l)					
Acetone	4,000	4,000	9,200,000	--	--
Benzene	5	5	2,700	--	--
2-Butanone (MEK)	1,900	--	5,200	1,900	--
1,1-Dichloroethane	4,000	4,000	400,000	--	--
1,1-Dichloroethene	7	7	--	--	--
cis-1,2-Dichloroethene	70	70	--	--	--
trans-1,2-Dichloroethene	100	100	--	--	--
Ethylbenzene	700	700	58,000	--	--
Methylene chloride	5	5	22,000	--	--
Tetrachloroethene	5	5	22,000	--	--
Toluene	1,000	1,000	280,000	--	--
Trichloroethene	5	5	7	--	--
1,1,2-Trichloroethane	5	5	--	--	--
Vinyl chloride	2	2	--	--	--
Xylenes, Total	10,000	10,000	99,000	--	--
Gasoline Range Organics	--	--	--	--	--
Total Extractable Hydrocarbons	--	--	--	--	--
METALS (Total) / CYANIDE (mg/l)					
Arsenic	0.135	0.05	0.97	--	0.135
Barium	2.520	2.0	5,500.00	--	2.520
Cadmium	0.005	0.005	39.00	--	0.005
Chromium	0.240	0.1	940.00	--	0.240
Lead	0.204	0.015	500.00	--	0.204
Mercury	0.002	0.002	23.00	--	0.0002
Selenium	0.05	0.05	390.00	--	0.050
Total Cyanide	0.2	0.2	1,600.00	--	--
METALS (Dissolved) (mg/l)					
Arsenic	0.050	0.05	0.97	--	0.021
Barium	2.000	2.0	5,500.00	--	0.444
Cadmium	0.005	0.005	39.00	--	0.005
Chromium	0.100	0.1	940.00	--	0.010
Lead	0.015	0.015	500.00	--	0.005
Mercury	0.002	0.002	23.00	--	0.0002
Selenium	0.05	0.05	390.00	--	0.005

Listed constituents were detected in the RFI.
-- Applicable value not available.

Footnotes:

1 Investigation Threshold Levels (ITLs) for groundwater were primarily derived from USEPA Soil Screening Levels (SSLs). For metals, the background concentration was utilized as the ITL if greater than the SSL criteria. For instances where the SSLs were unavailable, alternative USEPA Region V Data Quality Levels or Region IX Preliminary Remediation Goal (PRG) values were used as referenced below.

2 Soil Screening Levels, July 1996, non-zero MCLG, MCL, or HBL.

3 Alternative value acquired from USEPA Region V Data Quality Levels, December 1995.

4 Alternative value acquired from EPA Region IX Preliminary Remediation Goals, August 1, 1996.

5 Background Groundwater Concentrations are represented by the following statistical values:
- For parameters detected within the background groundwater samples, the value is the mean background concentration
- For parameters NOT detected within the background groundwater samples, the value is the detection limit.

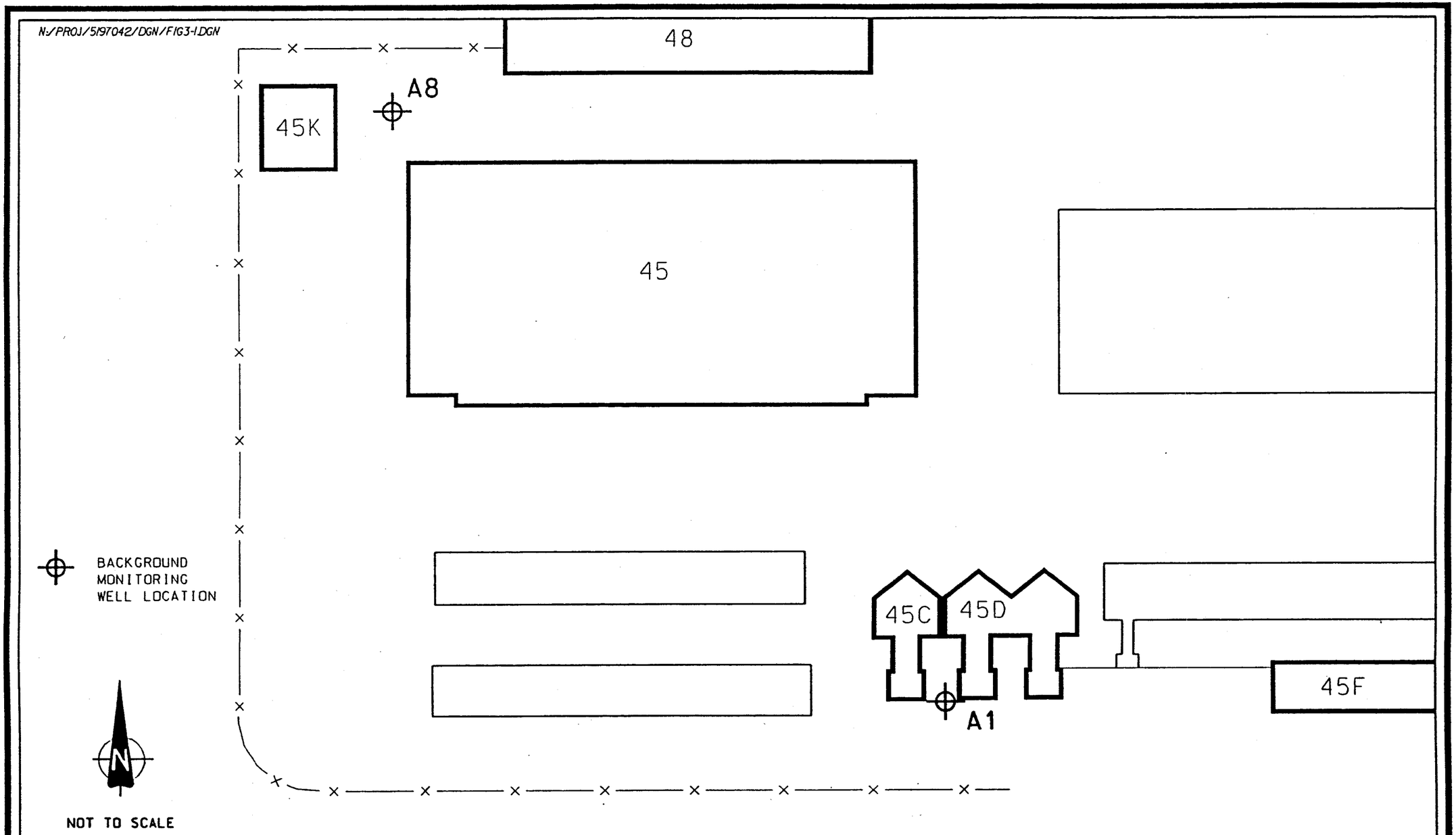


Figure 4-1
BACKGROUND MONITORING WELL LOCATIONS
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL

5.0 RFI Field Activities

This section summarizes the RFI field activities which were conducted to define the nature and extent of hazardous waste/constituent releases at the Facility. These activities included: soil boring installations, soil sampling and analyses, temporary piezometer/monitoring well completion, and groundwater monitoring and analyses. In general, RFI field activities were completed on a SWMU-specific basis for both soil and groundwater evaluation purposes.

The following general chronology of field activities was completed to fulfill the RFI scope of work as outlined in the RFI Workplan:

1) Installation of 25 investigative soil borings at the five SWMUs to assess geological and hydrogeological conditions beneath the Facility;
2) Installation of 5 temporary piezometers to assess hydrogeological conditions beneath SWMU Nos. 17 and 21 at the Facility;
3) Installation of 2 groundwater monitoring wells to assess hydrogeological conditions beneath SWMU No. 17;
4) Sampling of subsurface soils utilizing continuous and discrete interval split spoon collection methods;
5) Collection of subsurface soil samples for field screening and laboratory analyses;
6) Collection of groundwater samples for field screening and laboratory analyses;
7) Monitoring of groundwater potentiometric surface.

All RFI field activities were conducted in accordance with the protocols described in the QAPP and the HASP.

5.1 Installation of Soil Borings

Soil borings were installed at various locations to evaluate the nature and extent of any hazardous waste or hazardous constituent releases to soils at the Facility. The soil boring activities were also completed to further evaluate the geological and hydrogeological systems at the Facility.

Under the supervision of QST field personnel, drilling activities were conducted by Petro-Probe Investigations, Inc. (Petro-Probe) and Roberts Environmental Drilling, Inc. (Roberts Environmental). Drilling services provided by Petro-Probe were performed using a truck-mounted GeoProbe hydraulic rig. Supplemental drilling services provided by Roberts Environmental were performed using a truck-mounted CME 75 drilling rig.

Soil borings were installed using standard hydraulic soil probe and hollow-stem auger (HSA) drilling methodologies. Direct push soil borings completed with the GeoProbe rig were advanced using

1.75-inch internal diameter (ID) steel probing rods. Soil borings completed with the CME 75 drilling rig were advanced using 4¼-inch ID hollow-stem augers.

Prior to drilling at the initial and all subsequent borings, ancillary rig equipment were cleaned to eliminate cross-contamination between successive drilling locations. The GeoProbe-related sampling tubes were cleaned between SWMUs and detergent washed between sampling locations.

Continuous split spoon soil samples were collected from each boring for field screening, lithographic description, and subsequent chemical analysis. Each disposable sampling tube liner (or corresponding split spoon) was opened and immediately scanned with a PID to identify potential presence of VOCs. To maintain lithographic descriptive consistency, each soil sample was described and classified in accordance with the Unified Soil Classification (USC) system. Two-inch diameter split-spoon samplers were used for soil sampling purposes.

Upon completion of drilling, each boring was filled with a bentonite slurry mixture to surface. Generated soil cuttings were containerized in 55-gallon DOT-approved drums for subsequent management by MD.

RFI field activities were completed on a SWMU-specific basis in accordance with the guidelines specified in the RFI Workplan. A biased sampling approach was used to locate soil sampling locations at each of the SWMUs. The approximate locations, number of samples, and analyses were determined using the following criteria:

- guidelines specified in the RFI Workplan;
- historic operations performed at a specified area;
- soil boring and analytical results from prior site investigations;
- hazardous wastes or hazardous constituents managed; and
- field conditions (e.g., staining, PID readings, obstructions, etc.).

5.2 Soil Sampling and Analysis

Soil samples were collected from each boring to evaluate the nature and extent of any hazardous waste or hazardous constituent releases to soils at the Facility. Soil sampling activities were also completed to further evaluate the geological and hydrogeological systems beneath the Facility. Continuous split spoon soil samples were collected from selected borings for field screening, lithographic description, and subsequent chemical analysis.

Each soil sample was screened in the field with a PID for total organic vapors by the headspace method. This process involved placing a portion of the soil sample into a resealable plastic bag and allowing time for volatilization, if any, to occur. The concentration of VOCs that partition from the

soil to the gaseous state were then recorded in parts per million (ppm) by placing the PID probe into the container headspace.

All field screening equipment was calibrated at a minimum of once per day during RFI field efforts. Instrument calibration was performed in accordance with the manufacturers' recommended procedures using commercially available calibration standards. All calibration data were recorded in the field notebooks.

Selected soil samples collected during the RFI field activities were submitted for laboratory analysis. Samples were collected per the specifications in the MDNR-approved RFI Workplan.

Duplicate and trip blank samples were collected and analyzed in accordance with the QAPP specifications. The soil duplicate samples were analyzed for SWMU-specific parameters. Trip blank samples were analyzed for VOCs only.

Upon collection, each soil sample was managed according to the procedures described below. These procedures were established in accordance with the QAPP. Appropriate USEPA analytical methods, sample preservation techniques, sample volumes, and holding times are also presented in the QAPP.

Samples were collected into sample containers which were pre-cleaned and assembled to USEPA's Protocol "B". The volume of sample collected and the type of container used was determined by the suggested volumes described in SW-846 for the particular analysis. A summary of the bottle requirements and sample volumes is included in the QAPP.

Immediately upon collection, each sample was properly labeled to prevent misidentification. The sample labels were made of waterproof material and filled out with waterproof ink. The sample labels included the sample number, sample location, sample depth, date sampled, time sampled, analyses to be performed, and sample collector's name.

After labeling, the samples were placed into an appropriate shipping container. Samples collected for organic analysis were placed into a shipping container with sufficient ice or ice packs to preserve samples during transport to the laboratory. The samples were appropriately packaged in the shipping container to minimize the potential for damage during shipment. A completed chain-of-custody form was placed in each shipping container to accompany the samples to the laboratory. The shipping containers were then sealed with several strips of strapping tape.

The sample containers were shipped via overnight courier to Katalyst Analytical Technologies, Inc. (Katalyst) in Peoria, Illinois. Samples were shipped so that the laboratory received the samples within

24 hours from the time of shipment. Strict chain-of-custody procedures were maintained during sample handling.

A chain-of-custody program was followed to track the possession and handling of individual samples from time of collection through completion of laboratory analysis. Copies of the chain-of-custody record were retained in the permanent file for proper documentation. The chain-of-custody forms included:

- Sample number;
- Date and time of collection;
- Sample type (e.g., soil, groundwater, etc.);
- Number of containers;
- Parameters requested for analysis;
- Signature of person(s) involved in the chain of possession; and
- Inclusive dates of possession.

Soil sampling was performed to (1) delineate the horizontal and vertical extent of any potential releases at the Facility and (2) define the geological and hydrogeological systems beneath the Facility. Subsequent soil analyses were conducted to provide a quantitative evaluation of constituent impacts to soil at the Facility.

Soil samples were analyzed for SWMU-specific parameters in accordance with the guidelines specified in the RFI Workplan. Laboratory analyses were conducted in accordance with appropriate USEPA methodologies as prescribed in the QAPP. Analytical results for the soil samples are provided in Section 7.0.

5.3 Installation of Temporary Piezometers and Monitoring Wells

Five (5) temporary piezometers and two (2) monitoring wells (MW-5 and MW-6) were installed to facilitate characterization of groundwater conditions beneath SWMU Nos. 17 and 21 at the Facility. The piezometers/monitoring wells were also completed to evaluate the potentiometric surface beneath these two units.

The temporary piezometers and monitoring wells were installed to evaluate potentially impacted groundwater on a SWMU-specific basis. Five of the temporary piezometers and two of the monitoring wells (MW-5 and MW-6) were installed at SWMU No. 17 to evaluate PCE-related impacts to groundwater. One other temporary piezometer (TP-5) was installed at SWMU No. 21 to evaluate potential groundwater impacts from this unit.

Under the supervision of QST field personnel, temporary piezometer and monitoring well installation activities were completed by Petro-Probe and Roberts Drilling, respectively. With the exception of MW-5 (deep monitoring well), each temporary piezometer or monitoring well was installed within the shallow groundwater unit (generally 5-15 ft bls) in accordance with the RFI Workplan and the following general protocols:

1) Prior to installation of each piezometer/monitoring well, the screen and riser pipe were cleaned to ensure that all oils, greases, and waxes were removed.
2) Each temporary piezometer was constructed of 1-inch diameter, PVC with flush-threaded joints. Six-foot screen sections were utilized at the bottom of each installation.
3) Each monitoring well was similarly was constructed of 2-inch diameter, PVC with flush-threaded joints. Ten-foot screen sections were utilized at the bottom of each monitoring well installation.
4) The artificial sand pack consisted of chemically inert, rounded, silica sand and was placed by a tremie method to a height of approximately 2 feet above the top of the screen.
5) A bentonite pellet seal 2 feet in thickness was placed by a tremie method above the sand pack material.
6) The annular space above the bentonite pellet seal was sealed with cement/bentonite grout by the tremie method.
7) Each monitoring well was completed with a flush-mounted water-tight protective casing.
8) Well construction details were recorded on standard field forms.

5.4 Groundwater Monitoring Events

Three groundwater monitoring events were subsequently conducted to acquire groundwater quality/elevation data from SWMU Nos. 17 and 21. The initial monitoring events (February 9 and 20, 1998) included coverage of the five temporary piezometers (four at SWMU No. 17 and one at SWMU No. 21). An additional monitoring event (April 22, 1998) was subsequently completed to:
(1) characterize groundwater conditions for the two monitoring wells at SWMU No. 17; and
(2) provide additional groundwater elevation data for the four temporary piezometers and two monitoring wells at the unit.

Water level measurements were performed using an electronic water level probe and measured to the nearest 1/100 foot. Data were recorded in a field notebook and subsequently transferred to a standard monitoring form.

Prior to the collection of groundwater samples, each temporary piezometer/monitoring well was purged using a disposable polyethylene bailer. Each temporary piezometer/monitoring well was purged by removing a minimum of three well casing volumes of groundwater and obtaining stabilized

field parameter readings, or until dry. Samples were then collected using a disposable bottom-loading bailer using appropriate collection procedures as specified in the RFI Workplan.

Duplicate and trip blank samples were collected and analyzed in accordance with the QAPP specifications. The duplicate samples were analyzed for SWMU-specific parameters. Trip blank samples were analyzed for VOCs only.

Upon collection, each groundwater sample was managed in accordance with QAPP-specified protocols. Appropriate USEPA analytical methods, sample preservation techniques, sample volumes, and holding times are also presented in the QAPP. Each sample was collected and placed in an appropriate sample container and submitted for laboratory analysis.

Groundwater samples were analyzed for SWMU-specific VOCs, metals (total and dissolved), and cyanide as specified in the RFI Workplan. Laboratory analyses were conducted in accordance with appropriate USEPA methodologies as prescribed in the QAPP.

6.0 Additional RFI Activities

This section summarizes additional non-field related activities which were conducted as part of the RFI. These supplemental activities included: validation of field-related/analytical laboratory data and completion of a preliminary risk assessment.

6.1 Data Validation

Data validation procedures were completed for various field-related activities. Notebooks, groundwater monitoring data, and other field-related data were reviewed by the RFI Field Manager in accordance with QAPP-specified protocol.

Data validation procedures were also completed for laboratory-related activities. Katalyst performed data validation for the generated analytical data. Upon fulfilling the data validation requirements for each data set, Katalyst subsequently prepared and assembled a written quality assurance (QA) review document to describe/summarize their findings. These QA documents are presented in Appendix B.

6.2 Preliminary Risk Assessment

Preliminary risk assessment tasks were completed to evaluate the potential magnitude of risk to human health and the environment associated with the actual or potential release of constituents. The preliminary risk assessment provided an initial evaluation of the potential risk associated with SWMUs which failed the initial screening process outlined in Section 4.0. Furthermore, this effort helped to identify areas which may require additional investigation in the future.

The risk assessment is classified as "preliminary" at this time because additional investigative work may potentially be required. Documentation of the preliminary risk assessment and associated calculations is provided in Section 8.0, Appendix C, and Appendix D of this RFI Report.

7.0 RFI Results

This section discusses the geological, hydrogeological, and chemical analysis results of the RFI which served to characterize the nature and extent of hazardous waste/constituent releases at the Facility.

Section 7.1 summarizes the geological and hydrogeological results acquired from the RFI. Based on the general similarities of the geological/hydrogeological conditions for the five SWMUs, these results are presented on a facility-wide perspective. Copies of the soil boring and temporary piezometer/monitoring well logs are provided in Appendix A.

Sections 7.2 - 7.6 present the majority of the RFI results on a SWMU-specific basis. Applicable soil and/or groundwater analytical concentrations were compared with ITLs to characterize the nature and delineate the extent of any potential releases at each SWMU. Analytical laboratory data were assessed and validated based upon a review of standard quality control criteria established by the QAPP. Copies of the analytical reports and data validation summaries are provided in Appendix B.

7.1 Geological and Hydrogeological Results

Geological and hydrogeological information was acquired through an evaluation of the soil boring logs, associated geological cross-sections, and groundwater elevation measurements that were conducted at the Facility. Results are summarized below.

7.1.1 Geological Results

Facility soil borings were completed as part of the RFI to provide site-specific stratigraphic and hydrogeologic data. Soil boring data confirmed the presence of three general soil stratigraphic units overlying the bedrock surface at the Facility. These three general units are defined in descending order as the (1) Fill Unit, (2) Silty Clay Unit, and (3) Clay Unit.

Fill Unit

Soil boring data indicate that a heterogeneous Fill Unit overlies the native materials at the Facility. Fill generally consisted of a mixture of materials either excavated at the site or brought in as clean fill during Facility construction/modification activities. Categories specifically encountered include: (1) clay, gravel, and asphalt mixture; and (2) isolated construction debris including blocks of concrete, brick, and rubble. Unit thickness varied slightly between SWMUs, but typically ranged from 1 to 5 feet.

For the five SWMUs evaluated in this RFI, buildings and concrete/asphalt pavement overlie the Fill Unit with the exception of specific grass-covered areas at SWMU No. 21.

Silty Clay Unit

Soil boring data indicate the presence of a Silty Clay Unit beneath the previously defined Fill Unit. These native materials generally consisted of gray-brown to red-brown, soft to stiff, silty clay. Unit thickness generally ranged from 8-12 feet. Shallow groundwater was occasionally encountered within the Silty Clay Unit, although depths varied dramatically. Groundwater at SWMU No. 17 was detected from 4-12 ft bls. Groundwater at SWMU No. 21 was encountered between 13-27 ft bls.

Clay Unit

Soil boring data indicate the presence of a Clay Unit underlying the Silty Clay Unit. These native materials generally consisted of light to dark gray, stiff to very stiff, plastic clay. This unit was generally encountered between 15-20 ft bls. Soil boring data acquired from a deep boring at SWMU No. 17 (SB-9) affirmed the continuity of this unit from approximately 18-45 ft bls where the boring was terminated. Occasional soft wet clay zones were also encountered below 30 ft bls. These wet zones were generally no more than a few inches in thickness, although one continuous zone was noted at 40-42 ft bls.

Based on interpretations of both site-specific RFI boring results and regional geological information, the Clay Unit is expected to be relatively uniform and continuous beneath the Facility and immediately surrounding area. As such, it serves as an effective lower confining layer beneath the Facility.

7.1.2 Hydrogeological Results

RFI soil boring data also yielded information about the hydrogeological system beneath the Facility. As previously indicated, shallow groundwater was typically encountered in the Silty Clay Unit. However, this material has little potential to produce water as exemplified by the difficulties in acquiring sufficient sample volumes from temporary piezometers at SWMU Nos. 17 and 21.

Shallow groundwater was encountered at a range of depths for the various borings as summarized below for each SWMU:

- SWMU No. 17 - 4-12 ft bls;
- SWMU No. 21 - 13-27 ft bls;
- SWMU No. 26 - Not encountered from 0-13 ft bls;
- SWMU No. 31 - Not encountered from 0-8.5 ft bls; and
- SWMU No. 10 - Not encountered from 0-6 ft bls.

7.2 RFI Results for SWMU No. 17

Geological soil boring data, analytical soil data, analytical groundwater data, groundwater elevation measurements, and various field data were utilized to characterize the nature and extent of any hazardous waste/constituent impacts from SWMU No. 17 (Transfer Area for Recovered PCE).

7.2.1 Geological Cross-Section for SWMU No. 17

Based on the available RFI soil boring data for SWMU No. 17, a geological cross-section was prepared to illustrate subsurface characteristics at this unit. The cross-section depicts the relationships between various geologic units.

The location of the cross-section is indicated in Figure 7-1. Geological cross-section A-A' (southwest-northeast) for SWMU No. 17 is presented as Figure 7-2.

Geological Interpretations

The following conclusions were based from a review of the cross-section:

- The Fill Unit beneath SWMU No. 17 extends from at/near the surface to a depth of approximately 2-5 ft bls.
- The Silty Clay Unit is encountered beneath the Fill Unit and exhibits a typical thickness of approximately 12-15 ft.;
- The Clay Unit is encountered at approximately 17 ft bls; and
- SWMU No. 17 is underlain by an apparently continuous, homogeneous lacustrine clay of undetermined total thickness.

Hydrogeological Interpretations

The following conclusions were based from a review of the cross-section:

- Present across the Facility and including SWMU No. 17, the continuity and thickness of the Clay Unit are verified. The low vertical permeability of this Clay Unit provides a degree of vertical hydraulic separation from the underlying bedrock.
- Based on the relatively flat elevations displayed in the cross-section, stratigraphical contours are not anticipated to significantly alter constituent migration patterns.

7.2.2 Analytical Results for SWMU No. 17 Soil Samples

Analytical results for SWMU No. 17 soil samples were utilized to assess the horizontal and vertical extent of any impacted soils at this unit.

Ten borings were advanced to assess the extent of any releases from SWMU No. 17. Several of the soil borings exhibited PID/visual evidence of VOC-related impacts, thus necessitating the completion

of additional "step-out" borings. At these locations, the impacted boring was plugged and a new boring was advanced at a location of 20-30 ft further away from the source area. In this manner, the horizontal extent of SWMU No. 17 was extended further in an easternly direction.

Soil samples were collected from each of the borings and submitted for chemical analysis to delineate the horizontal extent of SWMU No. 17. Boring locations and associated analytical results are displayed in Figure 7-3. Analytical results for constituents detected in soil samples from this unit are summarized in Table 7-1.

Eleven VOC constituents including PCE; TCE; cis-1,2-DCE; trans-1,2-DCE; 1,1,2-trichloroethane; acetone; methylene chloride; 2-butanone; toluene; xylenes; and ethylbenzene were detected in samples acquired from this area. The highest VOC concentrations were detected at soil boring locations SB-1, SB-2, SB-3, and SB-4 within the most interior portions of the unit. Soil samples from SB-4, SB-1, and SB-2 exhibited the highest PCE concentrations of 240 ppm, 58 ppm, and 18 ppm, respectively. One soil sample from SB-4 contained 11.9 ppm cis-1,2-DCE. Soil samples from SB-7 along the southwest portion of the area and SB-5 along the northeast portion of the area exhibited PCE concentrations of 4.2 and 3.6 ppm, respectively.

Although collected from saturated intervals, soil samples from a deeper boring (SB-9) were also analyzed. While PCE was not detected in any of the SB-9 samples, several other VOC constituents were detected. Saturated soil samples from SB-9 exhibited maximum concentrations of 12 ppm TCE and 0.38 ppm 1,1,2-trichloroethane.

The low acetone and methylene chloride concentrations detected are likely to represent a laboratory artifact, as opposed to an accurate representation of soil conditions at SWMU No. 17.

Eighteen of the 24 soil samples collected from SWMU No. 17 contained concentrations which exceeded at least one VOC ITL. Six VOC constituents exceeded ITLs (cis-1,2-DCE, trans-1,2-DCE, methylene chloride, tetrachloroethene, 1,1,2-trichloroethane, and TCE).

Based on field observations, soil samples from SB-5 and SB-6 to the northeast of SWMU No. 17 were also analyzed for other non-RCRA related parameters. One soil sample from SB-5 exhibited a GRO concentration of 180 ppm and a TPH concentration of 1,900 ppm. One soil sample from SB-6 exhibited GRO and TPH levels of 25 ppm and 450 ppm, respectively.

Seven of eight heavy metal constituents were detected for samples acquired from SWMU No. 17. Concentrations were comparable to background values. Maximum concentrations for the unit included 20 ppm arsenic, 310 ppm barium, 0.9 ppm cadmium, 22 ppm chromium, 16 ppm lead, 0.56 ppm

mercury, and 1.6 ppm selenium. None of the soil samples from SWMU No. 17 contained constituent concentrations which exceeded metals ITLs.

The maximum detected values for the SWMU No. 17 soil samples were compared to the constituent-specific ITL values to evaluate the presence of significant constituent concentrations. Table 7-2 displays a comparison of the maximum and ITL values. As a result of this evaluation, the following soil-associated COCs at SWMU No. 17 were retained for evaluation in the preliminary risk assessment:

- VOCs (5): cis-1,2-DCE, trans-1,2-DCE, PCE, 1,1,2-trichloroethane, and TCE.

7.2.3 Analytical Results for SWMU No. 17 Groundwater Samples

Analytical results for SWMU No. 17 groundwater samples were utilized to characterize the nature and extent of constituent releases to groundwater beneath this unit.

Six groundwater samples were collected from SWMU No. 17 for chemical analysis. Groundwater samples from four of the temporary piezometers (TP-1, TP-2, TP-3, and TP-4) and monitoring well MW-5 provided analytical data regarding shallow groundwater conditions. The groundwater sample acquired from MW-6 was used to characterize groundwater conditions from a deeper portion of the saturated unit. Analytical results for groundwater samples collected from the 6 temporary piezometers/monitoring wells are summarized in Table 7-3. Groundwater sampling locations and associated analytical results for the monitoring event are provided in Figure 7-4.

Fourteen VOCs were detected in groundwater samples collected from SWMU No. 17. Three of the sampling locations which exhibited the highest VOC concentrations were situated within and immediately downgradient to the unit (TP-1, TP-2, and MW-5). Groundwater samples from TP-1, TP-2, and MW-5 exhibited the highest total VOC concentrations of 308 ppm, 58 ppm, and 146 ppm, respectively. The groundwater sample from TP-4 along the southwest corner of the unit also contained 17 ppm total VOCs. A downgradient boundary was established to the northeast of SWMU No. 17 where no VOCs were detected from TP-3.

PCE and several degradation products including TCE and cis-1,2-DCE were detected at the highest concentrations. Groundwater samples from TP-1 and TP-2 exhibited the highest PCE concentrations of 210 and 45 ppm, respectively. The sample from TP-1 also contained the highest cis-1,2-DCE level of 97 ppm. Located approximately 70 feet downgradient (east) from TP-1, the groundwater sample from deep well MW-5 exhibited the highest TCE concentration of 140 ppm.

Analytical results for the adjacent shallow and deep monitoring wells (MW-6 and MW-5, respectively) were also compared. Detected VOCs for the two wells were similar. However, the TCE

concentration for the deep well MW-5 (140 ppm) was significantly higher than the comparable value for MW-6 (0.37 ppm). In addition, vinyl chloride was detected only at these two SWMU No. 17 groundwater sampling locations. Groundwater samples from MW-5 and MW-6 exhibited vinyl chloride concentrations of 0.25 and 0.94 ppm, respectively.

Other VOC constituents including acetone, benzene, ethylbenzene, methylene chloride, toluene, and xylenes were generally detected at low concentrations [e.g., 50 parts per billion (ppb) or less, and/or on an isolated basis]. Detected levels for acetone and methylene chloride in particular are likely to be laboratory artifacts.

Five metals (arsenic, barium, lead, mercury, and selenium) were detected in the groundwater samples collected from TP-1 at SWMU No. 17. The groundwater sample exhibited detectable "total" levels of arsenic (0.0037 ppm), barium (0.44 ppm), and lead (0.0042 ppm). The sample exhibited detectable "dissolved" levels of barium (0.44 ppm), mercury (0.00034 ppm), and selenium (0.011 ppm). None of the metal constituent concentrations (total or dissolved) exceeded their respective ITLs.

The maximum concentration values were determined for the set of temporary piezometers/monitoring wells at SWMU No. 17. These maximum values for the groundwater samples were compared to the constituent-specific ITL values to evaluate the presence of significant constituent concentrations in groundwater. Table 7-4 displays a comparison of the maximum and ITL values for groundwater samples from SWMU No. 17.

As previously indicated, methylene chloride was likely associated with laboratory carryover. This constituent will be removed from further consideration with respect to SWMU No. 17.

As a result, the following groundwater-associated COCs at SWMU No. 17 were retained for evaluation in the preliminary risk assessment:

- VOCs (8): benzene, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, 1,1,2-trichloroethane, TCE, and vinyl chloride.

7.2.4 Groundwater Field Measurements for SWMU No. 17

In addition to the collection of samples for laboratory analysis, groundwater samples were also evaluated for the following field parameters: pH, conductivity, and temperature. These results are summarized by parameter below.

pH values for SWMU No. 17 groundwater samples ranged from 6.2 to a high of 12.9. Most values generally ranged from pH 6.5-7.5. The strongly basic value of 12.9 was detected from TP-4 to the

southwest of the unit. This reading represents the only pH value which indicates the presence of potentially abnormal groundwater conditions.

Conductivity values for SWMU No. 17 groundwater samples ranged from 1,300-101,000 units of conductivity (μs/cm). Most values generally ranged from 1,300-14,500 us/cm. The high end value of 101,000 μs/cm was detected from TP-4 to the southwest of the unit. This reading represents the only conductivity value which indicates the presence of potentially abnormal groundwater conditions.

Temperature values for SWMU No. 17 groundwater samples ranged from 8-17 degrees Celsius (°C). The lowest values were recorded during the February monitoring events while the highest values were recorded during the April monitoring event. None of the temperature results indicates the presence of any abnormal groundwater conditions.

7.2.5 Groundwater Elevation Data for SWMU No. 17

Groundwater level measurements were acquired to evaluate the direction and flowrate of shallow groundwater beneath SWMU No. 17 at the Facility. Static water level data were collected from selected temporary piezometers and monitoring wells during sampling events conducted on February 9, February 20, and April 22, 1998. Potentiometric surface maps for these monitoring events are displayed in Figures 7-5, 7-6, and 7-7. Groundwater level measurements for the monitoring events are provided in Table 7-5.

All three potentiometric surface maps demonstrate general flow of groundwater toward the east and Coldwater Creek. Very low flow gradients are also indicated.

7.3 RFI Results for SWMU No. 21

Analytical soil data, analytical groundwater data, and various field data were utilized to characterize the nature and extent of any hazardous waste/constituent impacts from SWMU No. 21 (IWTP Area).

7.3.1 Analytical Results for SWMU No. 21 Soil Samples

Analytical results for SWMU No. 21 soil samples were utilized to assess the horizontal and vertical extent of any potentially impacted soils at this unit.

Six total borings were advanced to assess the extent of any potential releases from SWMU No. 21. Soil samples were collected from each of the borings and submitted for chemical analysis to delineate the horizontal extent of SWMU No. 21. Boring locations and selected analytical results are displayed in Figures 7-8 and 7-9. Analytical results for constituents detected in soil samples from this unit are summarized in Table 7-6.

Based on PID/visual observations, the deeper soil sample from the southeast corner of SWMU No. 21 (SB-5) was submitted for additional VOC and fuel-related analyses. Acetone was the only VOC constituent detected in this soil sample at a very low concentration of 19 ppb. This result is likely a laboratory artifact, as opposed to an accurate representation of soil conditions at SWMU No. 21. This soil sample from SB-5 was also analyzed for other non-RCRA related parameters. The sample exhibited a GRO concentration of 93 ppm and a TPH concentration of 200 ppm.

Seven of eight heavy metal constituents were detected for samples acquired from SWMU No. 21. Concentrations were comparable to background values. Maximum concentrations for the unit included 13 ppm arsenic, 200 ppm barium, 0.7 ppm cadmium, 25 ppm chromium, 96 ppm lead, 0.22 ppm mercury, and 1.7 ppm selenium. None of the soil samples from SWMU No. 21 contained constituent concentrations which exceeded metals ITLs.

Cyanide was not detected in any of the 12 soil samples acquired from SWMU No. 21.

The maximum detected values for the SWMU No. 21 soil samples were compared to the constituent-specific ITL values to evaluate the presence of significant constituent concentrations. Table 7-7 displays a comparison of the maximum and ITL values.

None of the maximum detected values exceeded ITL values. As a result, none of the soil-related COCs at SWMU No. 21 were retained for evaluation in the preliminary risk assessment.

7.3.2 Analytical Results for SWMU No. 21 Groundwater Samples

Analytical results for SWMU No. 21 groundwater samples were utilized to characterize the nature of any potential constituent releases to groundwater beneath this unit.

One groundwater sample was collected from SWMU No. 21 for chemical analysis. Analytical results for the groundwater sample collected from the temporary piezometer at SWMU No. 21 are summarized in Table 7-8. The groundwater sampling location and associated analytical results for the monitoring event are displayed in Figure 7-10.

Five metals (barium, chromium, lead, mercury, and selenium) were detected in the groundwater samples collected from TP-1 at SWMU No. 21. The groundwater sample exhibited detectable "total" levels of barium (1.3 ppm), chromium (0.17 ppm), lead (0.075 ppm), mercury (0.00028 ppm), and selenium (0.0031 ppm). The sample exhibited detectable "dissolved" levels of barium (0.35 ppm) and selenium (0.0064 ppm).

Total cyanide was not detected in the groundwater sample collected from SWMU No. 21.

The maximum concentration values for the groundwater samples were compared to the constituent-specific ITL values to evaluate the presence of significant constituent concentrations in groundwater. Table 7-9 displays a comparison of the maximum and ITL values for groundwater samples from SWMU No. 21.

None of the metal constituent concentrations (total or dissolved) exceeded their respective ITLs.

7.4 Analytical Results for SWMU No. 26 Soil Samples

Analytical soil data and various field data were utilized to characterize the nature and extent of any hazardous waste/constituent impacts from SWMU No. 26 (Former Less-than-90-Day Storage Building).

Analytical results for SWMU No. 26 were utilized to assess the horizontal and vertical extent of any potentially impacted soils at this unit.

Three borings were advanced to assess the extent of any potential releases from SWMU No. 26. Per the RFI Workplan, soil boring SB-1 was advanced to a maximum depth of 13 ft bls in an effort to collect a groundwater sample. Groundwater was not encountered, hence groundwater samples could not be collected.

Soil samples were collected from each of the borings and submitted for chemical analysis to delineate the horizontal extent of SWMU No. 26. Boring locations and selected analytical results are displayed in Figures 7-11 and 7-12. Analytical results for constituents detected in soil samples from this unit are summarized in Table 7-10.

Acetone was the only VOC constituent detected in soil samples collected from SWMU No. 26. Concentrations ranged from non-detectable levels to a maximum of 73 ppb. These results are likely to represent a laboratory artifact, as opposed to an accurate representation of soil conditions at SWMU No. 26. None of the detected concentrations exceeded the ITL value for acetone.

Seven of eight heavy metal constituents were detected for samples acquired from SWMU No. 26. Concentrations were comparable to background values. Maximum concentrations for the unit included 9 ppm arsenic, 220 ppm barium, 22 ppm chromium, 15 ppm lead, 0.04 ppm mercury, and 3 ppm selenium. None of the soil samples from SWMU No. 26 contained constituent concentrations which exceeded metals ITLs.

The maximum detected values for the SWMU No. 26 soil samples were compared to the constituent-specific ITL values to evaluate the presence of significant constituent concentrations. Table 7-11 displays a comparison of the maximum and ITL values.

None of the maximum detected values exceeded ITL values. As a result, none of the soil-related COCs at SWMU No. 26 were retained for evaluation in the preliminary risk assessment.

7.5 Analytical Results for SWMU No. 31 Soil Samples

Analytical soil data and various field data were utilized to characterize the nature and extent of any hazardous waste/constituent impacts from SWMU No. 31 (Waste Oil Tank at Building 22).

Analytical results for SWMU No. 31 were utilized to assess the horizontal and vertical extent of any potentially impacted soils at this unit.

Three borings were advanced to assess the extent of any potential releases from SWMU No. 31. Soil samples were collected from each of the borings and submitted for chemical analysis to delineate the horizontal extent of SWMU No. 31. Boring locations and selected analytical results are displayed in Figures 7-13. Analytical results for constituents detected in soil samples from this unit are summarized in Table 7-12.

PCE and acetone were the only VOC constituents detected in soil samples collected from SWMU No. 31. PCE was detected in three of the six soil samples at very low concentrations ranging from 8-28 ppb. Acetone was detected in four of the six soil samples at low concentrations ranging from 31-140 ppb. These results are likely to associated with laboratory carryover, as opposed to an accurate representation of soil conditions at SWMU No. 31. None of the detected VOC concentrations exceeded their respective ITL values.

Phenanthrene was the only PAH constituent detected in soil samples collected from SWMU No. 31. The shallower soil sample from SB-1 exhibited a very low concentration of 5.07 ppb. Phenanthrene was not detected in any of the other five samples from this unit. The detected value did not exceed the ITL for phenanthrene.

Six of eight heavy metal constituents were detected for samples acquired from SWMU No. 31. Concentrations were comparable to background values. Maximum concentrations for the unit included 9 ppm arsenic, 190 ppm barium, 31 ppm chromium, 14 ppm lead, 0.06 ppm mercury, and 2 ppm selenium. None of the soil samples from SWMU No. 31 contained constituent concentrations which exceeded metals ITLs.

The maximum detected values for the SWMU No. 31 soil samples were compared to the constituent-specific ITL values to evaluate the presence of significant constituent concentrations. Table 7-13 displays a comparison of the maximum and ITL values.

None of the maximum detected values exceeded ITL values. As a result, none of the soil-related COCs at SWMU No. 31 were retained for evaluation in the preliminary risk assessment.

7.6 Analytical Results for SWMU No. 10 Soil Samples

Analytical soil data and various field data were utilized to characterize the nature and extent of any hazardous waste/constituent impacts from SWMU No. 10 (Waste Oil Tank at Building 5).

Analytical results for SWMU No. 10 were utilized to assess the horizontal and vertical extent of any potentially impacted soils at this unit.

Three borings were advanced to assess the extent of any potential releases from SWMU No. 10. Soil samples were collected from each of the borings and submitted for chemical analysis to delineate the horizontal extent of SWMU No. 10. Boring locations and selected analytical results are displayed in Figures 7-14. Analytical results for constituents detected in soil samples from this unit are summarized in Table 7-14.

Acetone was the only VOC constituent detected in soil samples collected from SWMU No. 10. Acetone was detected in four of the five soil samples at low concentrations ranging from 16-140 ppb. These results are likely to be associated with laboratory carryover, as opposed to an accurate representation of soil conditions at SWMU No. 10. None of the detected concentrations exceeded the respective ITL values for acetone.

Eleven ubiquitous PAH constituents were detected in soil samples collected from SWMU No. 10. Soil samples from SB-2 and SB-4 exhibited the highest PAH concentrations including 115 ppb benzo(b)fluoranthene, 84.2 ppb dibenzo(a,h)anthracene, 56.7 ppb fluoranthene, and 43.4 ppb pyrene. Other soil samples from SWMU No. 10 exhibited similarly low or non-detected PAH levels. None of the detected PAH concentrations exceeded their respective ITL values.

Six of eight heavy metal constituents were detected for samples acquired from SWMU No. 10. Concentrations were comparable to background values. Maximum concentrations for the unit included 12 ppm arsenic, 290 ppm barium, 20 ppm chromium, 19 ppm lead, 0.03 ppm mercury, and 2 ppm selenium. None of the soil samples from SWMU No. 10 contained constituent concentrations which exceeded metals ITLs.

The maximum detected values for the SWMU No. 10 soil samples were compared to the constituent-specific ITL values to evaluate the presence of significant constituent concentrations. Table 7-15 displays a comparison of the maximum and ITL values.

None of the maximum detected values exceeded ITL values. As a result, none of the soil-related COCs at SWMU No. 10 were retained for evaluation in the preliminary risk assessment.

TABLE 7-1

Detected Constituent Concentrations for SWMU 17 Soil Samples
McDonnell Douglas RFI

CONSTITUENT	UNITS	SAMPLE ID NUMBERS AND RESULTS													*INVESTIGATION THRESHOLD LEVEL (ITL) (1)*
		S17B1 (2.5' - 4')	S17B1 DUP (2.5' - 4')	S17B1 (12' - 13')	S17B1 (16' - 17')	S17B2 (3' - 4.5')	S17B2 (11' - 12.5')	S17B3 (10.5' - 11.5')	S17B4 (6' - 7')	S17B4 (11.5' - 13.5')	S17B4 (14' - 16')	S17B5 (5.5' - 7')	S17B5 (14' - 16')	S17B6 (9.5' - 11')	
Volatile Organics															
Acetone	ug/kg	240	1600 U	21	20	25	13 U	16	27	14 U	400	42	77 U	15	*16,000*
2-Butanone	ug/kg														*5,200*
cis-1,2-Dichloroethene	ug/kg	3200 U	810 U	22	88	6.5 U	46	24	13	760	11900	6.5 U	280	6.6 U	*400*
trans-1,2-Dichloroethene	ug/kg	9.6	36	6.4 U	6.8 U	6.5 U	6.4 U	6.7 U	6.7 U	6.7 U	19000 U	6.5 U	38 U	6.6 U	*700*
Ethylbenzene	ug/kg														*13,000*
Methylene chloride	ug/kg														*20*
Tetrachloroethene	ug/kg	24000	32000	9100	58000	18000	1100	3000	12000	200000	240000	35	3600	6.6 U	*60*
Toluene	ug/kg														*12,000*
1,1,2-Trichloroethane	ug/kg														*20*
Trichloroethene	ug/kg														*60*
Xylenes, Total	ug/kg	41	230	6.4 U	7.7	6.5 U	6.4 U	6.7 U	6.7 U	6.7 U	19000 U	6.5 U	38 U	6.6 U	*200,000*
Gasoline Range Organics	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180000	NA	25000	*NA*
Total Extractable Hydrocarbons	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1900	NA	450	*NA*
Metals/Inorganics															
Arsenic	mg/kg	10	6.4 U	20	15	10	11	6.6 U	20	7.2 U	9.7	NA	7.6 U	NA	*77*
Barium	mg/kg	210	160	100	110	310	80	170	130	79	86	NA	82	NA	*1,750*
Cadmium	mg/kg	0.63 U	0.64 U	0.65	0.68 U	0.88	0.63 U	0.66 U	0.67 U	0.72 U	0.75 U	NA	0.76 U	NA	*8*
Chromium	mg/kg	19	18	21	21	22	12	14	21	13	13	NA	12	NA	*85*
Lead	mg/kg	15	8.5	13	11	11	11	8.9	16	9.8	7.5	NA	9	NA	*400*
Mercury	mg/kg	0.03 U	0.48	0.05	0.56	0.54	0.52	0.53	0.55	0.55	0.55	NA	0.05	NA	*2*
Selenium	mg/kg	1.2	1.4	1	0.68 U	0.86	0.63 U	0.66 U	0.67 U	0.72	0.74 U	NA	1.6	NA	*5*

CONSTITUENT	UNITS	SAMPLE ID NUMBERS AND RESULTS													*INVESTIGATION THRESHOLD LEVEL (ITL) (1)*
		S17B7 (3.5' - 4.5')	S17B7 (7.5' - 8.5')	S17B7 (31.5' - 32.5')	S17B8 (6' - 7')	S17B8 (11.5' - 12.5')	S17B9 (26' - 27')	S17B9 DUP (26' - 27')	S17B9 (34' - 35')	S17B9 (41' - 42')	S17B9 (44' - 45')	S17B10 (4' - 5')	S17B10 (10.5' - 11.5')	S17B10 (14' - 15')	
Volatile Organics															
Acetone	ug/kg	68	35	50	30	25	39	48	40	16	34	26	13 U	180	*16,000*
2-Butanone	ug/kg	82	52	49	52	58	12 U	12 U	6.2 U	6.5 U	6.5 U	13 U	6.3 U	50	*5,200*
cis-1,2-Dichloroethene	ug/kg	6.6 U	6.4 U	6.5 U	6.3 U	10	160	110	6.2 U	13	17	6.3 U	6.3 U	7.4 U	*400*
trans-1,2-Dichloroethene	ug/kg	6.6 U	6.4 U	6.5 U	6.3 U	6.3 U	6.2 U	6.2 U	6.2 U	6.5 U	6.5 U	6.3 U	6.3 U	24	*700*
Ethylbenzene	ug/kg	13	6.4 U	6.5 U	6.3 U	6.3 U	6.2 U	6.2 U	6.2 U	6.5 U	6.5 U	6.3 U	6.3 U	7.4 U	*13,000*
Methylene chloride	ug/kg	6.7	6.5	6.9	6.7	6.3 U	19	26	22	18	16	24	6.3 U	69	*20*
Tetrachloroethene	ug/kg	4200	9.7	7.7	12	58	6.2 U	6.2 U	6.2 U	6.5 U	8.1	6.3 U	6.3 U	7.4 U	*60*
Toluene	ug/kg	20	6.4 U	6.5 U	6.3 U	6.3 U	6.2 U	6.2 U	6.2 U	6.5 U	6.5 U	6.3 U	6.3 U	7.4 U	*12,000*
1,1,2-Trichloroethane	ug/kg	6.6 U	6.4 U	6.5 U	6.3 U	6.3 U	180	380	18	6.5 U	6.5 U	6.3 U	6.3 U	7.4 U	*20*
Trichloroethene	ug/kg	44	6.4 U	6.5 U	6.3 U	6.3 U	12000	8200	39	1800	7900	9.3	64	28	*60*
Xylenes, Total	ug/kg	6.6 U	6.4 U	6.5 U	6.3 U	6.3 U	6.2 U	6.2 U	6.2 U	6.5 U	6.5 U	6.3 U	6.3 U	7.4 U	*200,000*

Notes:

U This compound was not detected at or above the associated numerical value. (Quantitation limit shown.)
NA Not analyzed.

(1) Constituent-specific screening value from Table 4-2.
(2) Metals were not analyzed for samples from soil borings SB-7, SB-8, SB-9, or SB-10.
Shaded values indicate constituent concentrations which exceed the investigation threshold levels.

TABLE 7-2

Maximum Concentrations for SWMU 17 Soil Samples
McDonnell Douglas RFI

CONSTITUENT	UNITS	Maximum Conc (1)	INVESTIGATION THRESHOLD LEVEL (ITL) (2)	Max Conc EXCEED ITL?
Volatile Organics				
Acetone	ug/kg	800	16,000	NO
2-Butanone	ug/kg	82	5,200	NO
cis-1,2-Dichloroethene	ug/kg	**11,900**	400	**YES**
trans-1,2-Dichloroethene	ug/kg	**9,500**	700	**YES**
Ethylbenzene	ug/kg	13	700	NO
Methylene chloride	ug/kg	**69**	20	**YES**
Tetrachloroethene	ug/kg	**240,000**	60	**YES**
Toluene	ug/kg	20	12,000	NO
1,1,2-Trichloroethane	ug/kg	**380**	20	**YES**
Trichloroethene	ug/kg	**12,000**	60	**YES**
Xylenes, Total	ug/kg	9,500	200,000	NO
Gasoline Range Organics	ug/kg	180,000	NA	--
Total Extractable Hydrocarbons	mg/kg	1,900	NA	--
Metals/Inorganics				
Arsenic	mg/kg	20	77	NO
Barium	mg/kg	310	1,600	NO
Cadmium	mg/kg	0.9	8	NO
Chromium	mg/kg	22	85	NO
Lead	mg/kg	16	400	NO
Mercury	mg/kg	0.56	2	NO
Selenium	mg/kg	1.6	5	NO

(1) Maximum constituent concentration for soil samples collected from SWMU No. 17.
(2) Constituent-specific screening value from Table 4-2.

TABLE 7-3

Detected Constituent Concentrations for SWMU 17 Groundwater Samples
McDonnell Douglas RFI

CONSTITUENT	UNITS	SAMPLE ID NUMBERS AND RESULTS							
		TP-1	TP-2	TP-3	TP-4	TP-4 DUP	MW-5 (Deep Well)	MW-6 (Shallow Well)	*INVESTIGATION THRESHOLD LEVEL (ITL) (1)*
Volatile Organics									
Acetone	ug/l	55	10 U	10 U	26	24	10 U	18	*4,000*
Benzene	ug/l	21	5 U	5 U	5 U	5 U	5 U	5 U	*5*
1,1-Dichloroethane	ug/l	11	5 U	5 U	5 U	5 U	5 U	5 U	*4,000*
1,1-Dichloroethene	ug/l	180	15	5 U	5 U	5 U	25	9.3	*7*
cis-1,2-Dichloroethene	ug/l	97000	6900	5 U	59	58	5500	4000	*70*
trans-1,2-Dichloroethene	ug/l	150	30	5 U	6.3	5.8	26	55	*100*
Ethylbenzene	ug/l	35	5 U	5 U	6.2	5.5	5 U	5 U	*700*
Methylene chloride	ug/l	8.5	5 U	5 U	5 U	5 U	7.5	5.5	*5*
Tetrachloroethene	ug/l	210000	45000	5 U	17000	11000	5 U	5 U	*5*
Toluene	ug/l	25000 U	7.3	5 U	36	35	5 U	5 U	*1,000*
1,1,2-Trichloroethane	ug/l	5 U	5 U	5 U	5 U	5 U	290	5 U	*5*
Trichloroethene	ug/l	25000 U	6000	5 U	150	150	140000	370	*5*
Vinyl chloride	ug/l	50000 U	10 U	10 U	10 U	10 U	250	940	*2*
Xylenes, Total	ug/l	160	5 U	5 U	17	16	5 U	5 U	*10,000*
Metals/Inorganics (Total)									
Arsenic	mg/l	0.0037	--	--	--	--	--	--	*0.135*
Barium	mg/l	0.44	--	--	--	--	--	--	*2.520*
Lead	mg/l	0.0042	--	--	--	--	--	--	*0.204*
Mercury	mg/l	0.0002 U	--	--	--	--	--	--	*0.002*
Selenium	mg/l	0.005 U	--	--	--	--	--	--	*0.050*
Metals/Inorganics (Dissolved)									
Arsenic	mg/l	0.05 U	--	--	--	--	--	--	*0.050*
Barium	mg/l	0.44	--	--	--	--	--	--	*2.000*
Lead	mg/l	0.003 U	--	--	--	--	--	--	*0.015*
Mercury	mg/l	0.00034	--	--	--	--	--	--	*0.002*
Selenium	mg/l	0.011	--	--	--	--	--	--	*0.050*

Notes:

U This compound was not detected at or above the associated numerical value. (Quantitation limit shown.)

(1) Constituent-specific screening value from Table 4-3.
Shaded values indicate constituent concentrations which exceed the ITLs.

TABLE 7-4

Maximum Concentrations for SWMU 17 Groundwater Samples
McDonnell Douglas RFI

CONSTITUENT	UNITS	Maximum Conc (1)	INVESTIGATION THRESHOLD LEVEL (ITL) (2)	Max Conc EXCEED ITL?
Volatile Organics (ug/l)				
Acetone	ug/l	55	4,000	NO
Benzene	ug/l	**21**	5	**YES**
1,1-Dichloroethane	ug/l	11	4,000	NO
1,1-Dichloroethene	ug/l	**180**	7	**YES**
cis-1,2-Dichloroethene	ug/l	**97,000**	70	**YES**
trans-1,2-Dichloroethene	ug/l	**150**	100	**YES**
Ethylbenzene	ug/l	35	700	NO
Methylene chloride	ug/l	**9**	5.0	**YES**
Tetrachloroethene	ug/l	**210,000**	5.0	**YES**
Toluene	ug/l	36	1000.0	NO
1,1,2-Trichloroethane	ug/l	**290**	5.0	**YES**
Trichloroethene	ug/l	**140,000**	5	**YES**
Vinyl chloride	ug/l	**25,000**	2.0	**YES**
Xylenes, Total	ug/l	160	10,000	NO
Metals/Inorganics (Total)				
Arsenic	mg/l	0.004	0.135	NO
Barium	mg/l	0.440	2.520	NO
Lead	mg/l	0.004	0.204	NO
Mercury	mg/l	0.0001	0.002	NO
Selenium	mg/l	0.003	0.050	NO
Metals/Inorganics (Dissolved)				
Arsenic	mg/l	0.025	0.050	NO
Barium	mg/l	0.440	2.000	NO
Lead	mg/l	0.002	0.015	NO
Mercury	mg/l	0.0003	0.002	NO
Selenium	mg/l	0.011	0.050	NO

(1) Maximum constituent concentration for groundwater samples collected from SWMU No. 17.
(2) Constituent-specific screening value from Table 4-3.

Table 7-5. Groundwater Elevation Measurements for SWMU No. 17
McDonnell Douglas RFI

Piezometer / Well	TOC	Round 1 February 9, 1998		Round 2 February 20, 1998		Round 3 April 22, 1998	
		D to W	Elevation	D to W	Elevation	D to W	Elevation
TP-1	100.54	2.81	97.73	2.38	98.16	1.82	98.72
TP-2	99.99	3.60	96.39	3.03	96.96	2.66	97.33
TP-3	101.33	6.43	94.90	5.68	95.65	5.71	95.62
TP-4	99.96	2.18	97.78	0.99	98.97	0.60	99.36
MW-5 (deep)	100.07	--	--	--	--	7.21	92.86
MW-6 (shallow)	100.33	--	--	--	--	4.10	96.23

All elevation measurements in feet.
TOC = Top of casing elevation.
D to W = Depth to water.
-- = No data available; wells were not installed until April 1998.

Source: QST, 1998

TABLE 7-6

Detected Constituent Concentrations for SWMU 21 Soil Samples
McDonnell Douglas RFI

CONSTITUENT	UNITS	SAMPLE ID NUMBERS AND RESULTS												
		S21B1 (1' - 2')	S21B1 (27' - 28')	S21B2 (1' - 2')	S21B2 (13' - 15')	S21B3 (4' - 5')	S21B3 (17' - 21')	S21B4 (2' - 3')	S21B4 (7' - 9')	S21B5 (2' - 4')	S21B5 (10' - 12')	S21B6 (2' - 4')	S21B6 (10' - 12')	*INVESTIGATION THRESHOLD LEVEL (ITL) (1)*
Volatile Organics														
Acetone	ug/kg	--	--	--	--	--	--	--	--	--	19	--	--	*16,000*
Benzene	ug/kg	--	--	--	--	--	--	--	--	--	6.5 U	--	--	*30*
Ethylbenzene	ug/kg	--	--	--	--	--	--	--	--	--	6.5 U	--	--	*13,000*
Toluene	ug/kg	--	--	--	--	--	--	--	--	--	6.5 U	--	--	*12,000*
Xylenes, Total	ug/kg	--	--	--	--	--	--	--	--	--	27 U	--	--	*200,000*
Gasoline Range Organics	ug/kg	--	--	--	--	--	--	--	--	--	93000	--	--	*NA*
Total Extractable Hydrocarbons	mg/kg	--	--	--	--	--	--	--	--	--	200	--	--	*NA*
Metals/Inorganics														
Arsenic	mg/kg	13	6.4 U	6.2 U	6.6 U	8.4	10	7.1	6.3 U	13	11	6	12	*77*
Barium	mg/kg	130	73	180	120	160	160	110	62	200	140	110	99	*1,600*
Cadmium	mg/kg	0.72	0.64 U	0.63 U	0.66 U	0.63 U	0.64 U	0.62 U	0.63 U	0.62 U	0.64	0.59 U	0.65 U	*8*
Chromium	mg/kg	18	16	14	15	15	16	18	12	23	15	25	17	*85*
Lead	mg/kg	10	7.2	15	10	10	16	12	7	14	12	96	8.5	*400*
Mercury	mg/kg	0.04	0.03	0.03	0.03	0.03	0.03	0.06	0.09	0.22	0.07	0.06	0.03	*2*
Selenium	mg/kg	1.2	0.99	1.5	1	1.4	1.7	1	1.6	1.2	0.91	1.7	1	*5*
Total Cyanide	mg/kg	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	*40*

Notes:

U This compound was not detected at or above the associated numerical value. (Quantitation limit shown.)

(1) Constituent-specific screening value from Table 4-2.
Shaded values indicate constituent concentrations which exceed the investigation threshold levels.

TABLE 7-7

Maximum Concentrations for SWMU 21 Soil Samples
McDonnell Douglas RFI

CONSTITUENT	UNITS	Maximum Conc (1)	INVESTIGATION THRESHOLD LEVEL (ITL) (2)	Max Conc EXCEED ITL?
Volatile Organics				
Acetone	ug/kg	19	16,000	NO
Benzene	ug/kg	ND	30	NO
Ethylbenzene	ug/kg	ND	13,000	NO
Toluene	ug/kg	ND	12,000	NO
Xylenes, Total	ug/kg	ND	200,000	NO
Gasoline Range Organics	ug/kg	93,000	NA	--
Total Extractable Hydrocarbons	mg/kg	200	NA	--
Metals/Inorganics				
Arsenic	mg/kg	13	77	NO
Barium	mg/kg	200	1,600	NO
Cadmium	mg/kg	0.7	8	NO
Chromium	mg/kg	25	85	NO
Lead	mg/kg	96	400	NO
Mercury	mg/kg	0.22	2	NO
Selenium	mg/kg	1.7	5	NO
Total Cyanide	mg/kg	ND	40	NO

(1) Maximum constituent concentration for soil samples collected from SWMU No. 21.
(2) Constituent-specific screening value from Table 4-2.

TABLE 7-8

Detected Constituent Concentrations for SWMU 21 Groundwater Samples McDonnell Douglas RFI

CONSTITUENT	UNITS	SAMPLE WELL ID AND RESULTS TP1	*INVESTIGATION THRESHOLD LEVEL (ITL) (1)*
Metals/Inorganics (Total)			
Barium	mg/l	1.3	*2.520*
Chromium	mg/l	0.17	*0.240*
Lead	mg/l	0.075	*0.204*
Mercury	mg/l	0.00028	*0.002*
Selenium	mg/l	0.031	*0.050*
Total Cyanide	mg/l	0.005 U	*0.2*
Metals/Inorganics (Dissolved)			
Barium	mg/l	0.35	*2.000*
Chromium	mg/l	0.01 U	*0.100*
Lead	mg/l	0.003 U	*0.015*
Mercury	mg/l	0.0002 U	*0.002*
Selenium	mg/l	0.0064	*0.050*

Notes:

U This compound was not detected at or above the associated numerical value. (Quantitation limit shown)

(1) Constituent-specific screening value from Table 4-3.

Shaded values indicate constituent concentrations which exceed the ITLs.

TABLE 7-9

Maximum Concentrations for SWMU 21 Groundwater Samples
McDonnell Douglas RFI

CONSTITUENT	UNITS	Maximum Conc (1)	INVESTIGATION THRESHOLD LEVEL (ITL) (2)	Max Conc EXCEED ITL?
Metals/Inorganics (mg/l) (Total)				
Barium	mg/l	1.300	2.520	NO
Chromium	mg/l	0.170	0.240	NO
Lead	mg/l	0.075	0.204	NO
Mercury	mg/l	0.0003	0.002	NO
Selenium	mg/l	0.031	0.050	NO
Total Cyanide	mg/l	ND	0.200	YES
Metals (Dissolved) (mg/l)				
Barium	mg/l	0.350	2.000	NO
Chromium	mg/l	ND	0.100	NO
Lead	mg/l	ND	0.015	NO
Mercury	mg/l	ND	0.002	NO
Selenium	mg/l	0.006	0.050	NO

(1) Maximum constituent concentration for groundwater samples collected from SWMU No. 21.
(2) Constituent-specific screening value from Table 4-3.

TABLE 7-10

Detected Constituent Concentrations for SWMU 26 Soil Samples
McDonnell Douglas RFI

CONSTITUENT	UNITS	SAMPLE ID NUMBERS AND RESULTS							
		S26B1 (2' - 3')	S26B1 (7' - 9')	S26B1 (10' - 11')	S26B2 (3' - 4')	S26B2 (7' - 8')	S26B3 (2' - 3')	S26B3 (9' - 11')	*INVESTIGATION THRESHOLD LEVEL (ITL) (1)*
Volatile Organics									
Acetone	ug/kg	39	13 U	34	73	17	24	17	*16,000*
Metals/Inorganics									
Arsenic	mg/kg	6.2 U	7.6	6.4 U	8.6	6.4 U	8.1	8.7	*77*
Barium	mg/kg	210	120	89	170	83	220	110	*1,600*
Cadmium	mg/kg	0.62 U	0.64 U	0.64 U	0.62 U	0.64 U	0.63 U	0.64 U	*8*
Chromium	mg/kg	22	18	15	20	16	22	12	*85*
Lead	mg/kg	7.4	11	8.1	10	7.4	15	10	*400*
Mercury	mg/kg	0.04	0.03 U	0.03 U	0.04	0.03 U	0.03	0.03 U	*2*
Selenium	mg/kg	1.2	1.8	2.5	1.6	0.64 U	1.7	1.4	*5*

Notes:

U This compound was not detected at or above the associated numerical value. (Quantitation limit shown.)

(1) Constituent-specific screening value from Table 4-2.
Shaded values indicate constituent concentrations which exceed the investigation threshold levels.

TABLE 7-11

Maximum Concentrations for SWMU 26 Soil Samples
McDonnell Douglas RFI

CONSTITUENT	UNITS	Maximum Conc (1)	INVESTIGATION THRESHOLD LEVEL (ITL) (2)	Max Conc EXCEED ITL?
Volatile Organics				
Acetone	ug/kg	73	16,000	NO
Metals/Inorganics				
Arsenic	mg/kg	9	77	NO
Barium	mg/kg	220	1,600	NO
Cadmium	mg/kg	ND	8	NO
Chromium	mg/kg	22	85	NO
Lead	mg/kg	15	400	NO
Mercury	mg/kg	0.04	2	NO
Selenium	mg/kg	3	5	NO

(1) Maximum constituent concentration for soil samples collected from SWMU No. 17.
(2) Constituent-specific screening value from Table 4-2.

TABLE 7-12

Detected Constituent Concentrations for SWMU 31 Soil Samples
McDonnell Douglas RFI

CONSTITUENT	UNITS	SAMPLE ID NUMBERS AND RESULTS						INVESTIGATION THRESHOLD LEVEL (ITL) (1)
		S31B1 (6.2' - 7')	S31B1 (8' - 8.5')	S31B2 (5.2' - 6')	S31B2 (7.5' - 8.5')	S31B3 (1.5' - 2.5')	S31B3 (6.5' - 8.5')	
Volatile Organics								
Acetone	ug/kg	13 U	13 U	51	31	51	140	*16,000*
Tetrachloroethene	ug/kg	8	28	9.4	6.5 U	6.5 U	6.8 U	*60*
Semi-Volatile Organics								
Phenanthrene	ug/kg	5.07	4.54 U	4.14 U	4.32 U	4.25 U	56.7 U	*660*
Metals/Inorganics								
Arsenic	mg/kg	6.3 U	6.7 U	6.6	6.5 U	8.8	6.7 U	*77*
Barium	mg/kg	180	97	140	96	190	140	*1,600*
Cadmium	mg/kg	0.64 U	0.68 U	0.62 U	0.64 U	0.63 U	0.67 U	*8*
Chromium	mg/kg	11	31	12	12	15	12	*85*
Lead	mg/kg	9.8	14	11	6	13	7.9	*400*
Mercury	mg/kg	0.05	0.04	0.04	0.05	0.06	0.05	*2*
Selenium	mg/kg	0.63 U	0.67 U	2.3	0.65 U	0.63 U	0.67 U	*5*

Notes:

U This compound was not detected at or above the associated numerical value. (Quantitation limit shown.)

(1) Constituent-specific screening value from Table 4-2.
Shaded values indicate constituent concentrations which exceed the investigation threshold levels.

TABLE 7-13

Maximum Concentrations for SWMU 31 Soil Samples
McDonnell Douglas RFI

CONSTITUENT	UNITS	Maximum Conc (1)	INVESTIGATION THRESHOLD LEVEL (ITL) (2)	Max Conc EXCEED ITL?
Volatile Organics				
Acetone	ug/kg	140	16,000	NO
Tetrachloroethene	ug/kg	28	60	NO
Semi-Volatile Organics				
Phenanthrene	ug/kg	5	660	NO
Metals/Inorganics				
Arsenic	mg/kg	9	77.0	NO
Barium	mg/kg	190	1600.0	NO
Cadmium	mg/kg	ND	8.0	NO
Chromium	mg/kg	31	85.0	NO
Lead	mg/kg	14	400.0	NO
Mercury	mg/kg	0.06	2.0	NO
Selenium	mg/kg	2	5.0	NO

(1) Maximum constituent concentration for soil samples collected from SWMU No. 31.
(2) Constituent-specific screening value from Table 4-2.

TABLE 7-14

Detected Constituent Concentrations for SWMU 10 Soil Samples
McDonnell Douglas RFI

CONSTITUENT	UNITS	SAMPLE ID NUMBERS AND RESULTS					
		S10B1 (4' - 5')	S10B1 (6' - 7')	S10B2 (3' - 5')	S10B2 (5' - 6')	S10B4 (3' - 5')	*INVESTIGATION THRESHOLD LEVEL (ITL) (1)*
Volatile Organics							
Acetone	ug/kg	16	13 U	51	31	140	*16,000*
Semi-Volatile Organics							
Anthracene	ug/kg	4.15 U	4.27 U	4.15 U	4.31 U	6.42	*12,000,000*
Benzo(a)anthracene	ug/kg	4.15 U	4.27 U	4.15 U	4.31 U	17	*900*
Benzo(a)pyrene	ug/kg	4.43	4.27 U	6.27	15.4	9.31	*90*
Benzo(b)fluoranthene	ug/kg	5.03	5.02	8.02	8.42	115	*900*
Benzo(g,h,i)perylene	ug/kg	7.79	4.27 U	9.98	29.9	17.5	*660*
Chrysene	ug/kg	4.35	6.36	4.63	6.35	13.9	*88,000*
Dibenz(a,h)anthracene	ug/kg	10.8	4.27 U	30.7	84.2	46.5	*90*
Fluoranthene	ug/kg	5.46	15.6	14.1	16.3	4.25 U	*3,100,000*
Indeno(1,2,3-cd)pyrene	ug/kg	4.15 U	7.26	4.15 U	15.8	4.25 U	*900*
Phenanthrene	ug/kg	10.6	8.29	15.9	30.2	56.7	*660*
Pyrene	ug/kg	11.6	14.3	17.2	16.2	43.4	*2,300,000*
Metals/Inorganics							
Arsenic	mg/kg	7.4	11	12	10	6.3 U	*77*
Barium	mg/kg	97	93	150	130	290	*1,600*
Cadmium	mg/kg	0.62 U	0.63 U	0.61 U	0.65 U	0.63 U	*8*
Chromium	mg/kg	15	15	20	17	15	*85*
Lead	mg/kg	12	14	14	18	19	*400*
Mercury	mg/kg	0.02 U	0.03	0.03	0.03	0.03 U	*2*
Selenium	mg/kg	0.78	0.96	1	0.88	1.6	*5*

Notes:

U This compound was not detected at or above the associated numerical value. (Quantitation limit shown.)

(1) Constituent-specific screening value from Table 4-2.
Shaded values indicate constituent concentrations which exceed the investigation threshold levels.

TABLE 7-15

Maximum Concentrations for SWMU 10 Soil Samples
McDonnell Douglas RFI

CONSTITUENT	UNITS	Maximum Conc (1)	INVESTIGATION THRESHOLD LEVEL (ITL) (2)	Max Conc EXCEED ITL?
Volatile Organics				
Acetone	ug/kg	140	16,000	NO
Semi-Volatile Organics				
Anthracene	ug/kg	6	12,000,000	NO
Benzo(a)anthracene	ug/kg	17	900	NO
Benzo(a)pyrene	ug/kg	15	90	NO
Benzo(b)fluoranthene	ug/kg	115	900	NO
Benzo(g,h,i)perylene	ug/kg	30	660	NO
Chrysene	ug/kg	14	88,000	NO
Dibenz(a,h)anthracene	ug/kg	84	90	NO
Fluoranthene	ug/kg	16	3,100,000	NO
Indeno(1,2,3-cd)pyrene	ug/kg	16	900	NO
Phenanthrene	ug/kg	57	660	NO
Pyrene	ug/kg	43	2,300,000	NO
Metals/Inorganics				
Arsenic	mg/kg	12	77	NO
Barium	mg/kg	290	1,600	NO
Cadmium	mg/kg	ND	8	NO
Chromium	mg/kg	20	85	NO
Lead	mg/kg	19	400	NO
Mercury	mg/kg	0.03	2	NO
Selenium	mg/kg	2	5	NO

(1) Maximum constituent concentration for soil samples collected from SWMU No. 10.
(2) Constituent-specific screening value from Table 4-2.

G:/5197042/DGN/FIG7-4.DGN

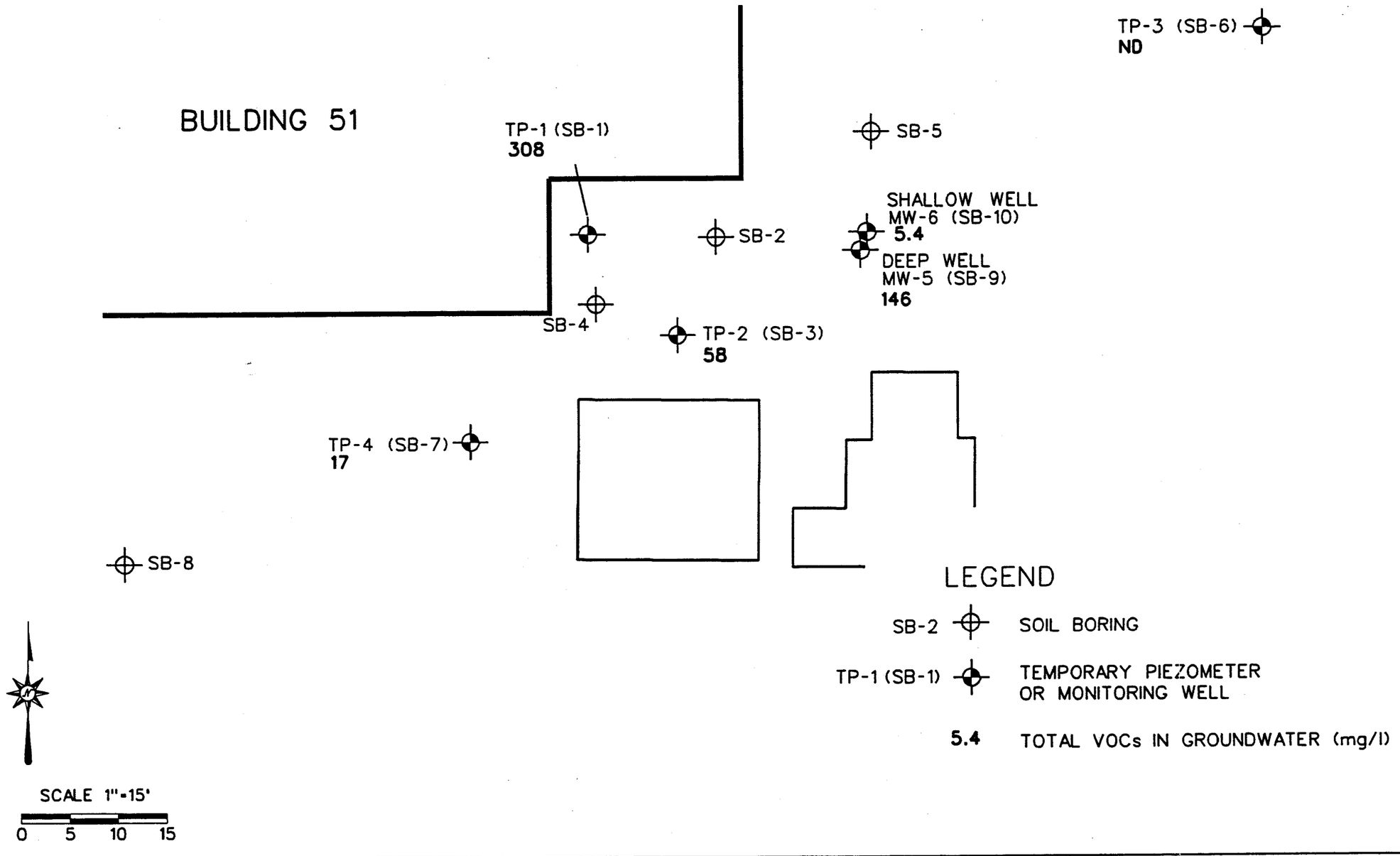


Figure 7-4
TOTAL VOC CONCENTRATIONS FOR SWMU No. 17 GROUNDWATER SAMPLES
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL

G:/5197042/DGN/FIG7-5.DGN

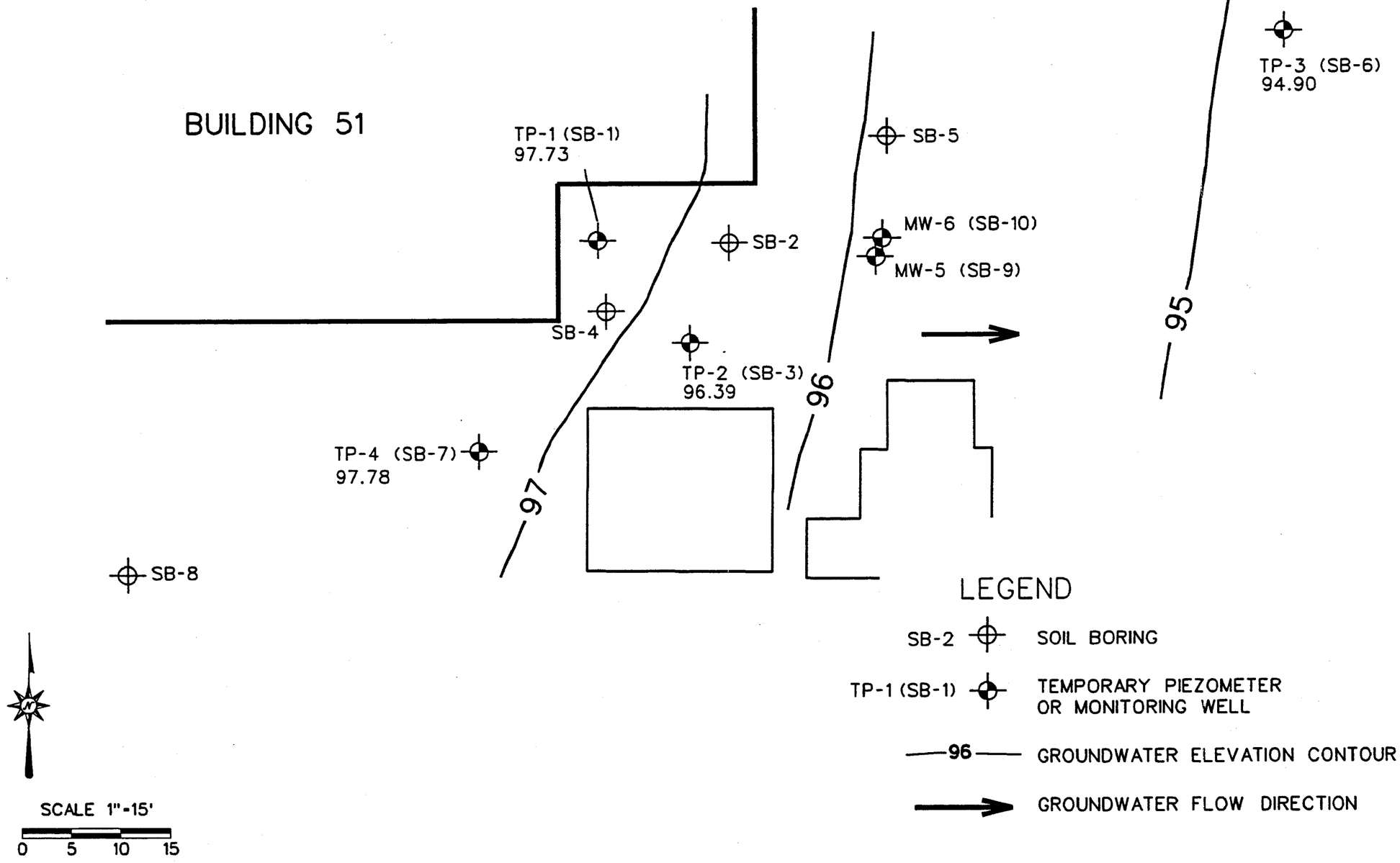


Figure 7-5
GROUNDWATER ELEVATION CONTOURS FOR SWMU No. 17 (FEBRUARY 9, 1998)
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL

G:/5197042/DGN/FIG7-3.DGN

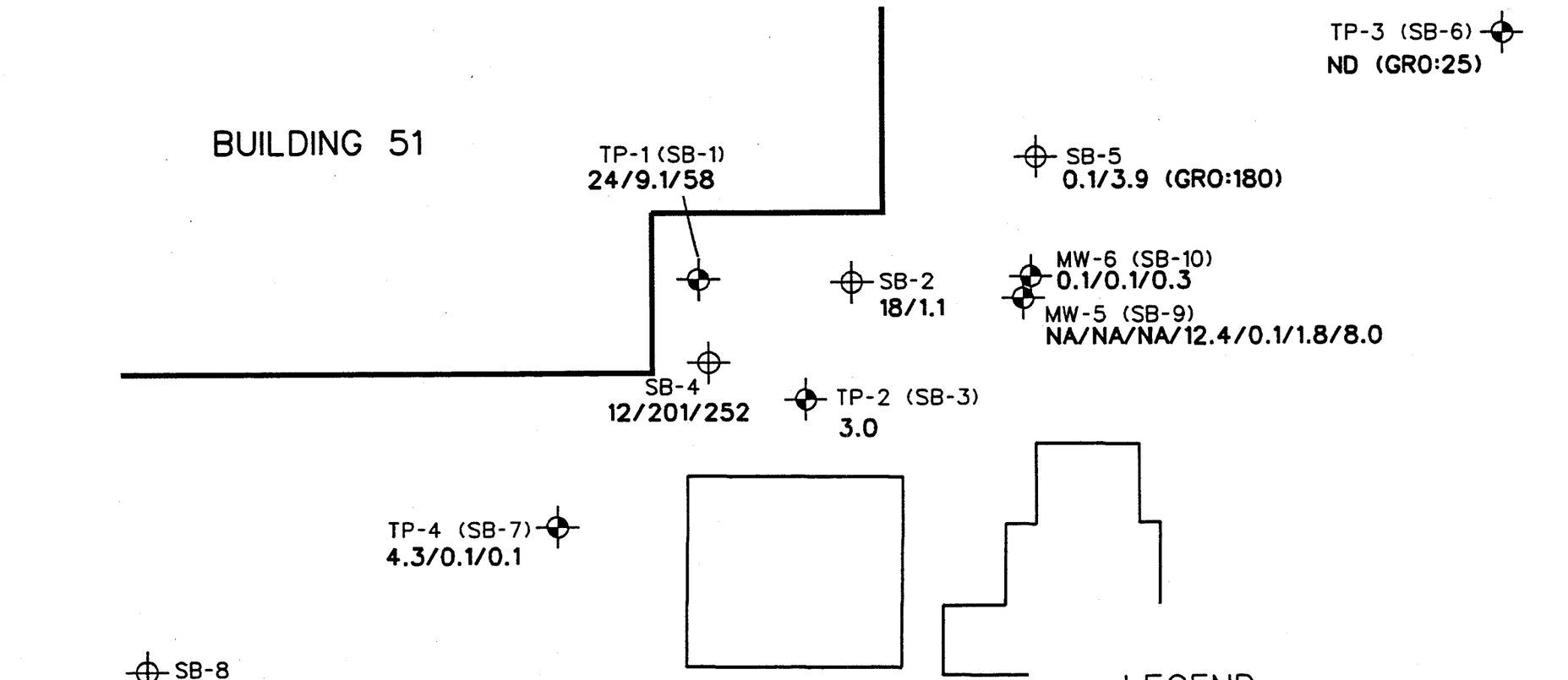


Figure 7-3
TOTAL VOC CONCENTRATIONS FOR SWMU No. 17 SOIL SAMPLES
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL

G:/5197042/DGN/FIG7-1.DGN

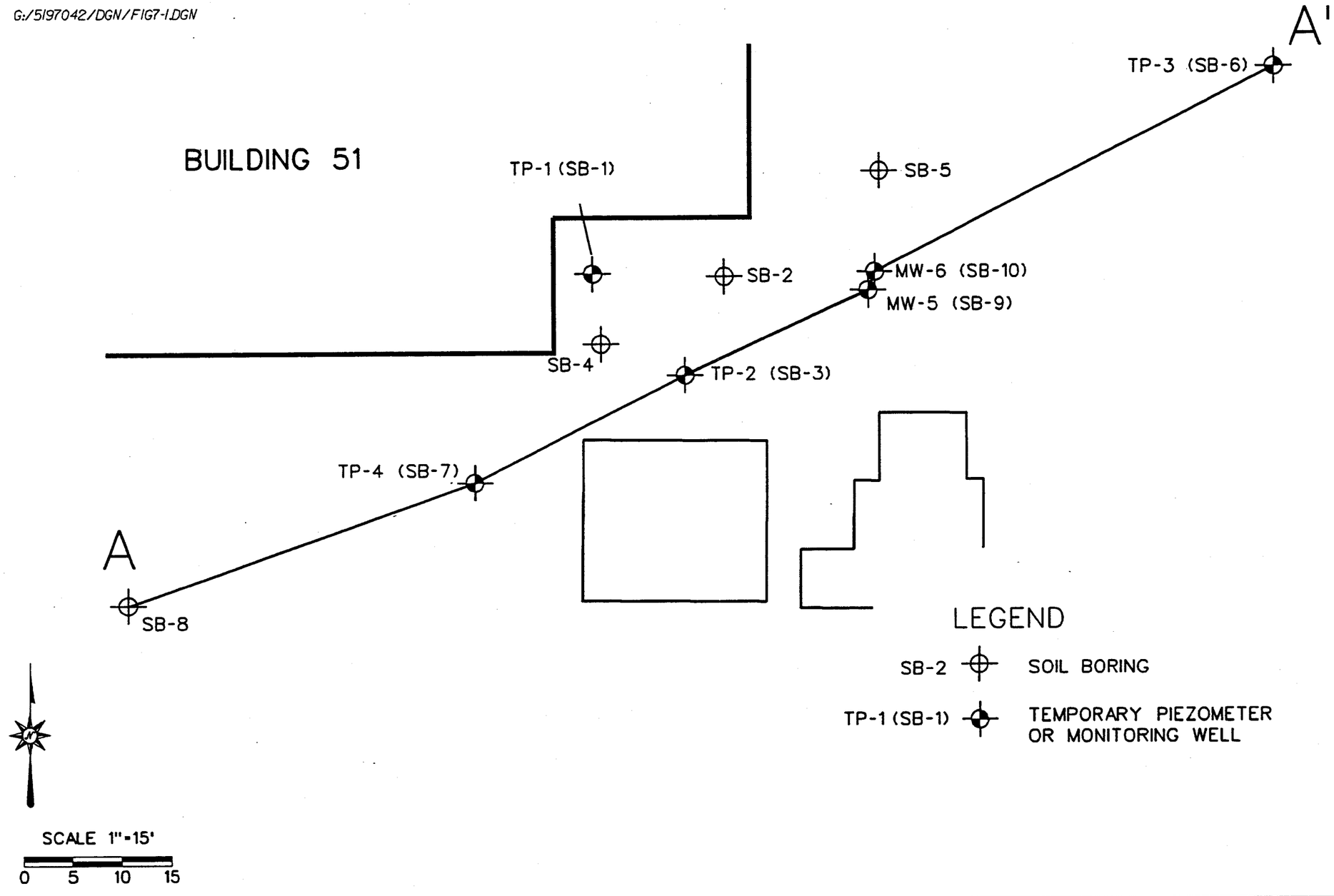


Figure 7-1
CROSS-SECTION LOCATION FOR SWMU No.17
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL

G:/5197042/DGN/FIG7-6.DGN

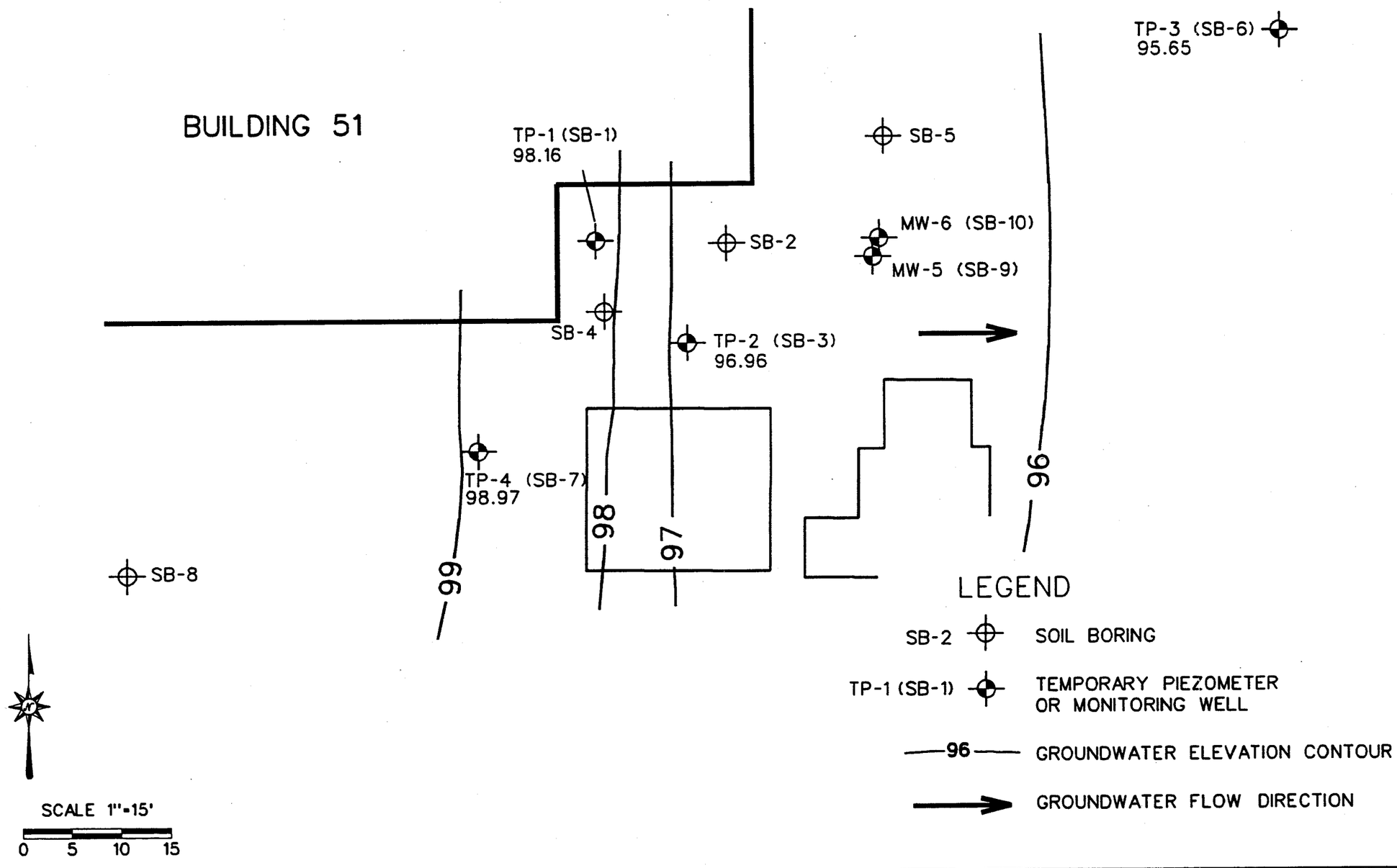
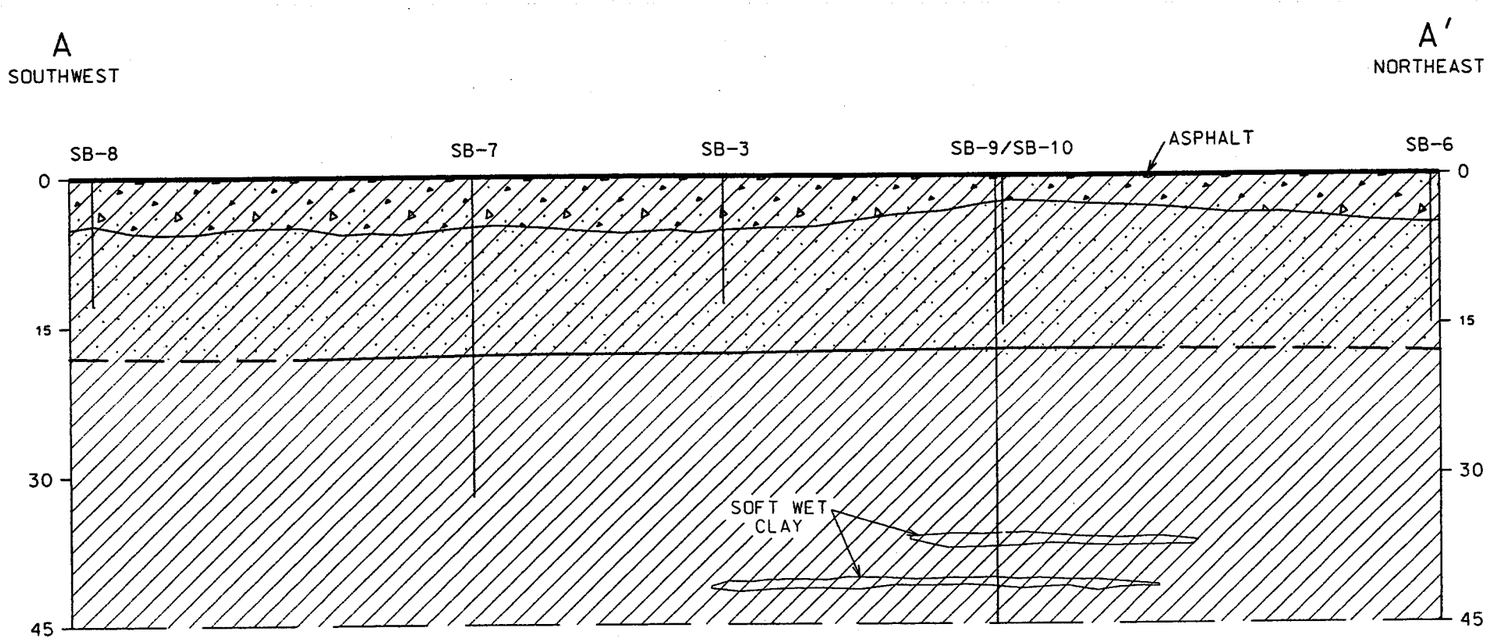


Figure 7-6
GROUNDWATER ELEVATION CONTOURS FOR SWMU No. 17 (FEBRUARY 20, 1998)
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL

p:\597042\DGN\FIG7-2.DGN



FILL – Mixed, previously disturbed materials: gravel, asphalt, clay

SILTY CLAY – Gray brown to red-brown, soft to stiff

CLAY – Dark gray, stiff to very stiff plastic clay. Occasional soft wet clay zones noted in SB-9

SCALE: 1' = 15'
NO VERTICAL EXAGGERATION

Figure 7-2
CROSS-SECTION A-A' FOR SMWU No. 17
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL

G:/5197042/DGN/FIG7-7.DGN

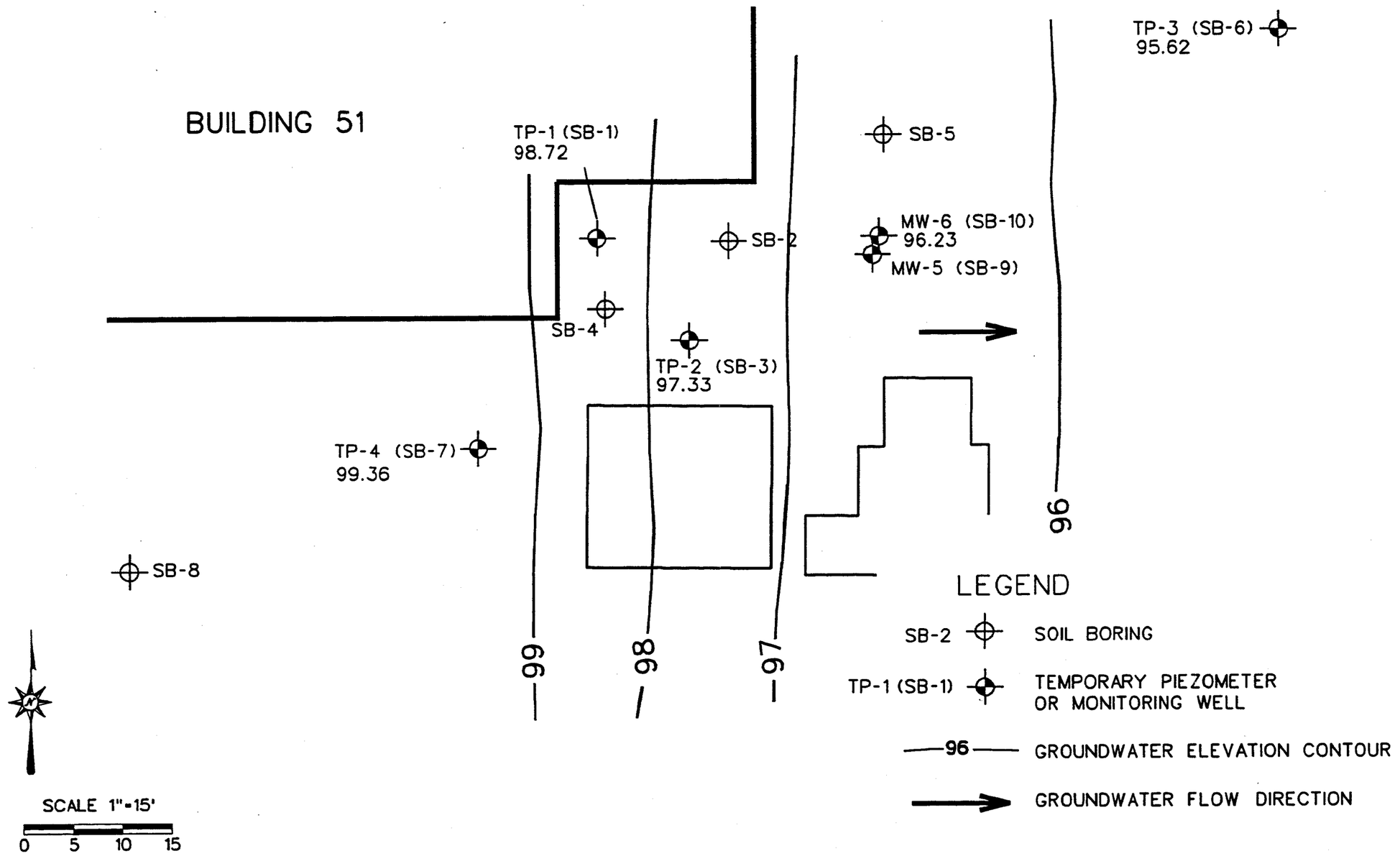
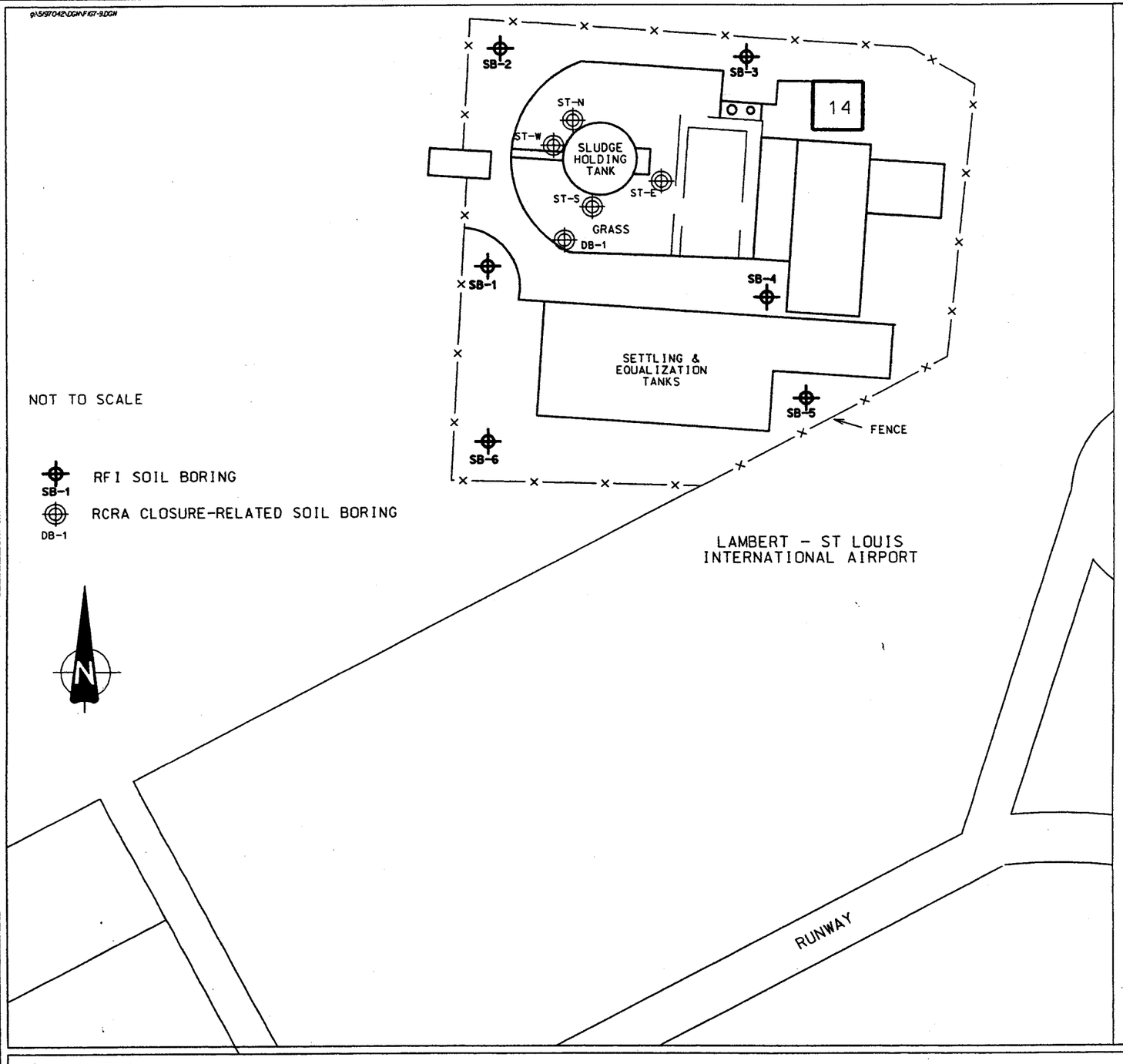


Figure 7-7
GROUNDWATER ELEVATION CONTOURS FOR SWMU No. 17 (APRIL 22, 1998)
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL

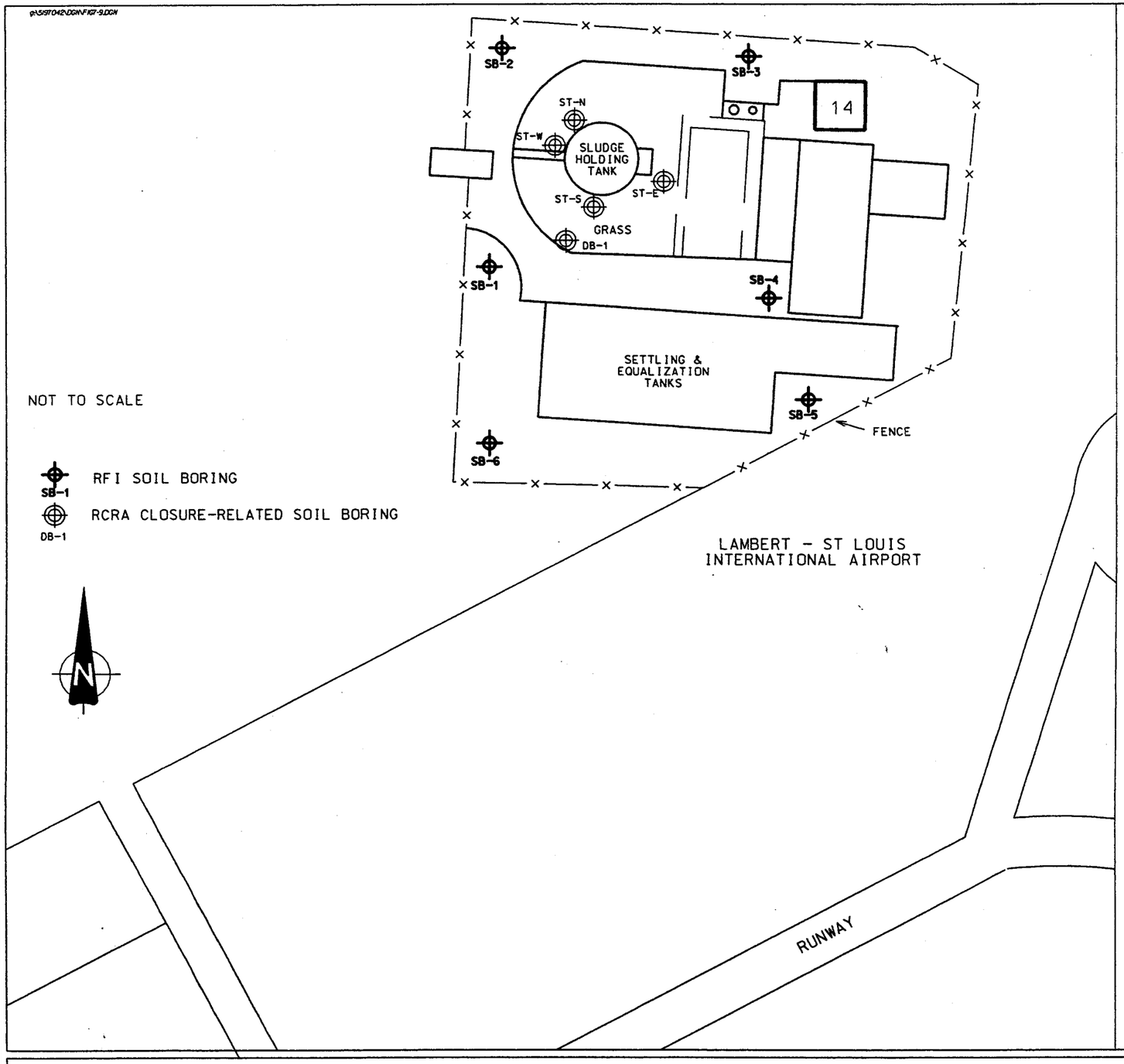


	SOIL BORING ID (SAMPLE DEPTH INTERVAL)					
	SB-1 (1'-2')	SB-2 (1'-2')	SB-3 (4'-5')	SB-4 (2'-3')	SB-5 (2'-4')	SB-6 (2'-4')
Arsenic	13 ppm	ND	8.4 ppm	7.1 ppm	13 ppm	6 ppm
Barium	130 ppm	180 ppm	160 ppm	110 ppm	200 ppm	110 ppm
Cadmium	0.7 ppm	ND	ND	ND	ND	ND
Chromium	18 ppm	14 ppm	15 ppm	18 ppm	23 ppm	25 ppm
Lead	10 ppm	15 ppm	10 ppm	12 ppm	14 ppm	96 ppm
Mercury	0.04 ppm	0.03 ppm	0.03 ppm	0.06 ppm	0.22 ppm	0.06 ppm
Selenium	1.2 ppm	1.5 ppm	1.4 ppm	1 ppm	1.2 ppm	1.7 ppm
Total Cyanide	ND	ND	ND	ND	ND	ND

NOTE: ND = CONSTITUENT NOT DETECTED

Figure 7-8
SELECTED METALS CONCENTRATIONS FOR SWMU No. 21 SHALLOW SOIL SAMPLES
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL



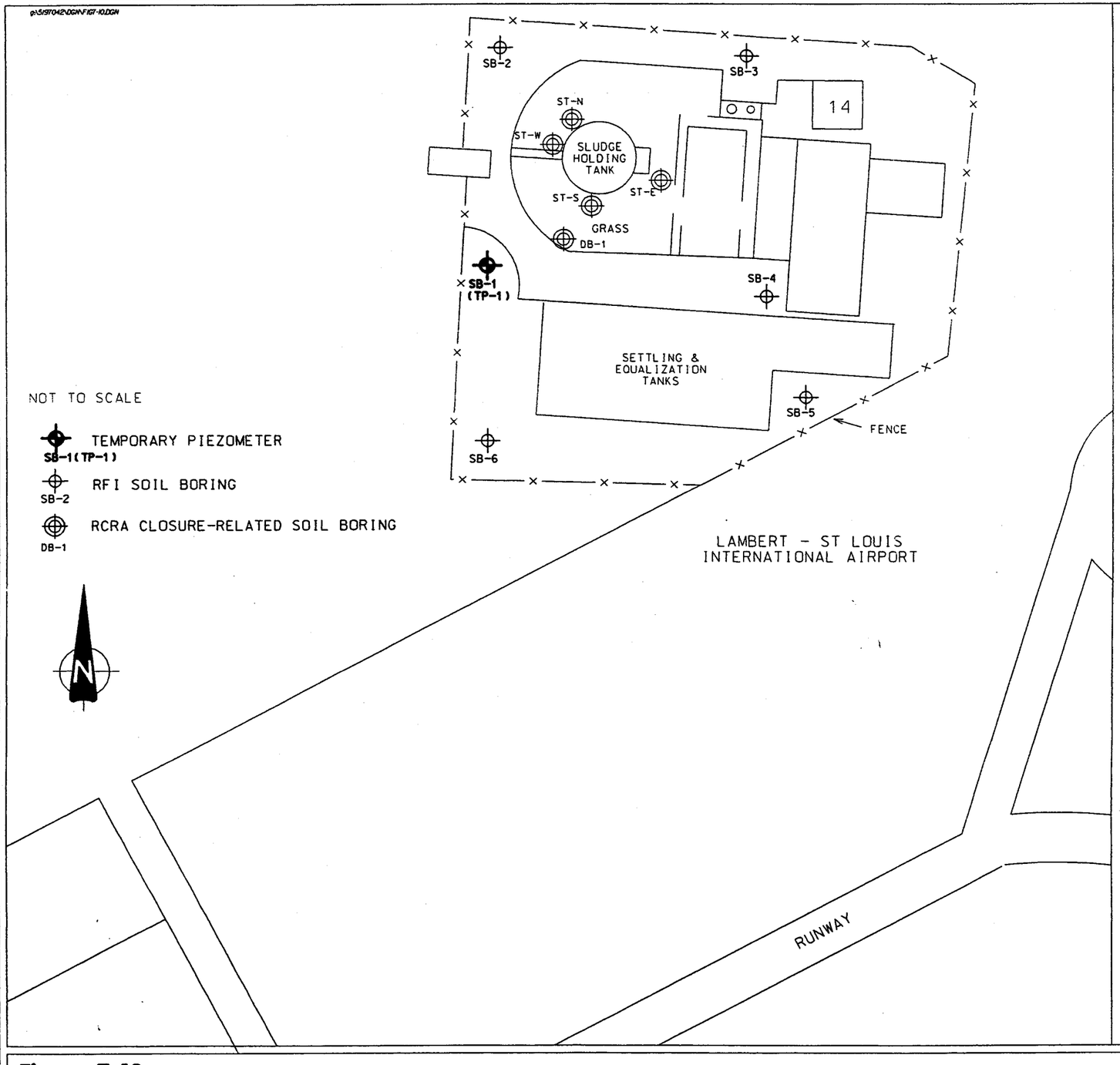
	SOIL BORING ID (SAMPLE DEPTH INTERVAL)					
	SB-1 (27'-28')	SB-2 (13'-15')	SB-3 (17'-21')	SB-4 (7'-9')	SB-5 (10'-12')	SB-6 (10'-12')
Arsenic	ND	ND	10 ppm	ND	11 ppm	12 ppm
Barium	73 ppm	120 ppm	160 ppm	62 ppm	140 ppm	99 ppm
Cadmium	ND	ND	ND	ND	0.64 ppm	ND
Chromium	16 ppm	15 ppm	16 ppm	12 ppm	15 ppm	17 ppm
Lead	7.2 ppm	10 ppm	16 ppm	7 ppm	12 ppm	8.5 ppm
Mercury	0.03 ppm	0.03 ppm	0.03 ppm	0.09 ppm	0.07 ppm	0.03 ppm
Selenium	0.99 ppm	1 ppm	1.7 ppm	1.6 ppm	0.91	1 ppm
Total Cyanide	ND	ND	ND	ND	ND	ND
GRO					93 ppm	
TPH					200 ppm	

NOTE: ND = CONSTITUENT NOT DETECTED

Figure 7-9
SELECTED METALS/FUEL-RELATED CONCENTRATIONS FOR SWMU No. 21 DEEP SOIL SAMPLES
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL

p:\57042\DGN\FIGT-10.DGN



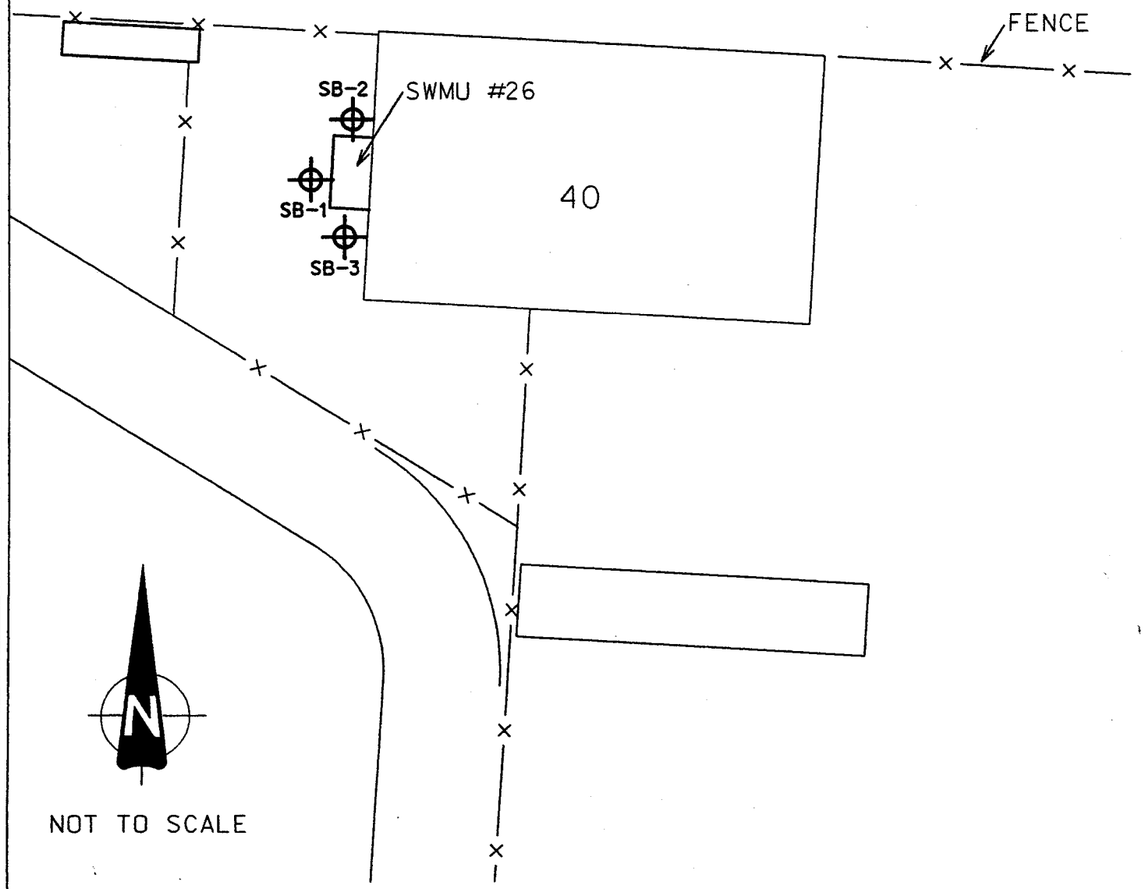
	TEMPORARY PIEZOMETER
	TP-1
Arsenic (TOT)	ND
Barium (TOT)	1.3 ppm
Barium (DISS)	0.35 ppm
Cadmium (TOT)	ND
Chromium (TOT)	0.17 ppm
Lead (TOT)	0.075 ppm
Mercury (TOT)	0.00028 ppm
Selenium (TOT)	0.031 ppm
Selenium (DISS)	0.0064 ppm
Total Cyanide	ND

NOTE: ND = CONSTITUENT NOT DETECTED

Figure 7-10
SELECTED INORGANIC CONCENTRATIONS FOR SWMU No. 21 GROUNDWATER SAMPLES
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL

N:\PROJ\5197042\DGN\FIG7-11.DGN



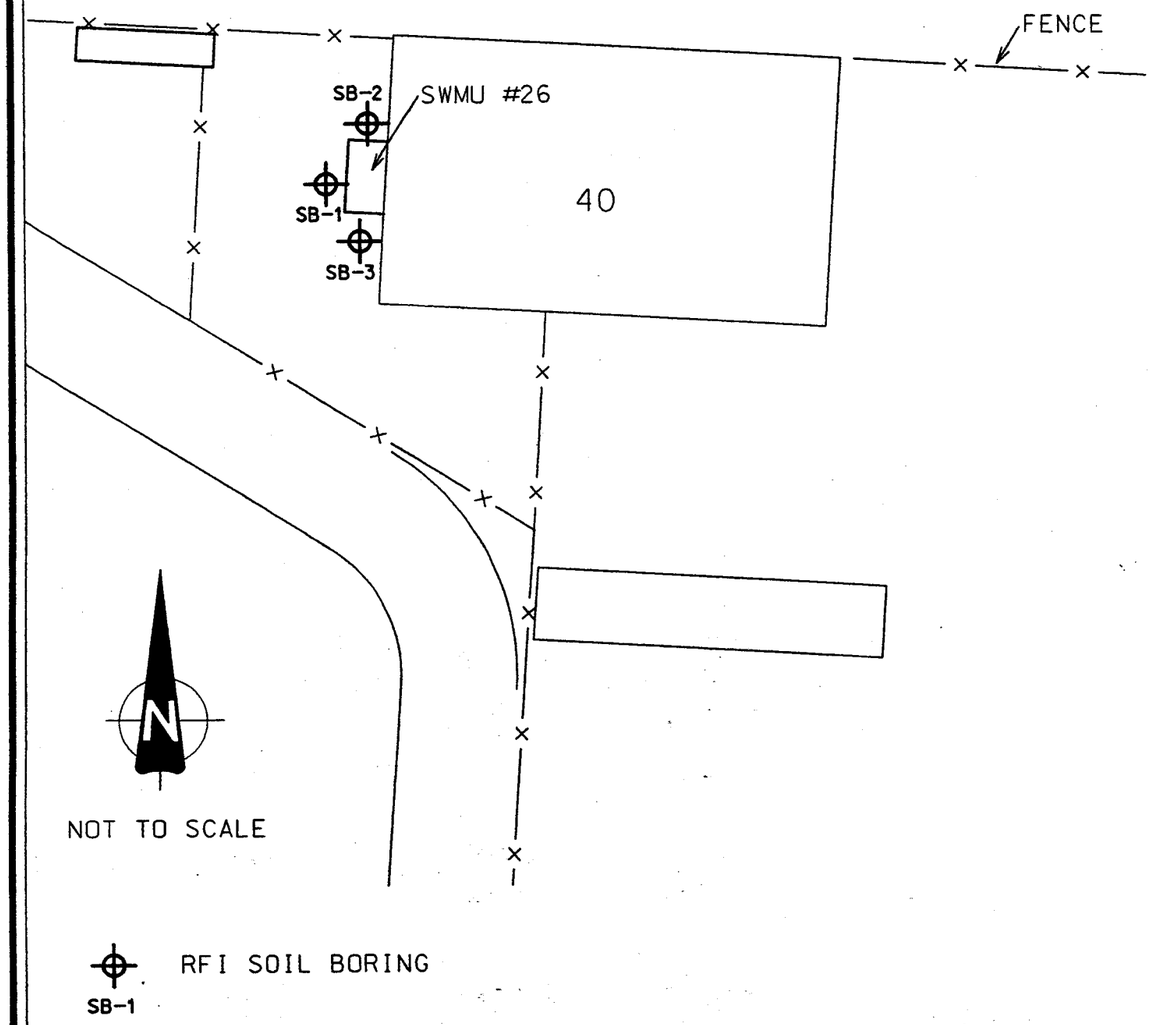
		SOIL BORING ID (SAMPLE DEPTH INTERVAL)		
		SB-1 (2'-3')	SB-2 (3'-4')	SB-3 (2'-3')
VOC	Acetone	39 ppb	73 ppb	24 ppb
METALS	Arsenic	ND	8.6 ppm	8.1 ppm
	Barium	210 ppm	170 ppm	220 ppm
	Cadmium	ND	ND	ND
	Chromium	22 ppm	20 ppm	22 ppm
	Lead	7.4 ppm	10 ppm	15 ppm
	Mercury	0.04 ppm	0.04 ppm	0.03 ppm
	Selenium	1.2 ppm	1.6 ppm	1.7 ppm

NOTE: ND = CONSTITUENT NOT DETECTED

Figure 7-11
SELECTED VOC/METALS CONCENTRATIONS FOR SWMU No. 26 SHALLOW SOIL SAMPLES
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL

N:\PROJ\5197042\DGN\FIG7-12.DGN



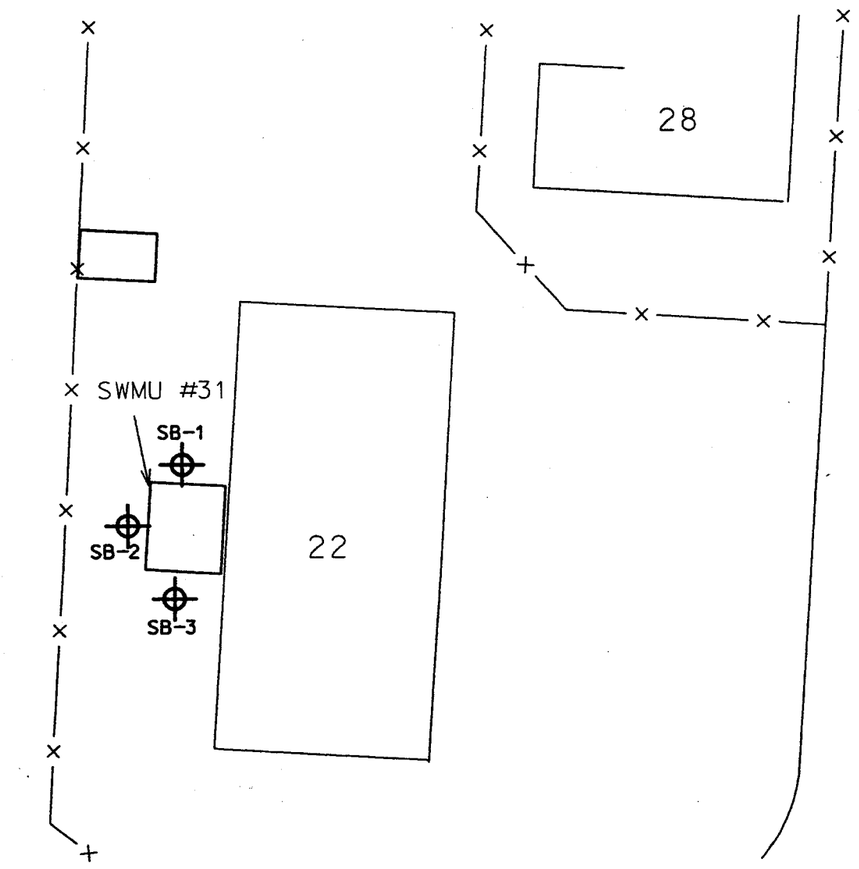
		SOIL BORING ID (SAMPLE DEPTH INTERVAL)		
		SB-1 (10'-11')	SB-2 (7'-8')	SB-3 (9'-11')
VOC	Acetone	34 ppb	17 ppb	17 ppb
METALS	Arsenic	ND	ND	8.7 ppm
	Barium	89 ppm	83 ppm	110 ppm
	Cadmium	ND	ND	ND
	Chromium	15 ppm	16 ppm	12 ppm
	Lead	8.1 ppm	7.4 ppm	10 ppm
	Mercury	ND	ND	ND
	Selenium	25 ppm	ND	1.4 ppm

NOTE: ND = CONSTITUENT NOT DETECTED

Figure 7-12
SELECTED VOC/METALS CONCENTRATIONS FOR SWMU No. 26 DEEP SOIL SAMPLES
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL

N:\PROJ\5197042\DGN\FIG7-13.DGN



SB-1 RFI SOIL BORING

NOT TO SCALE

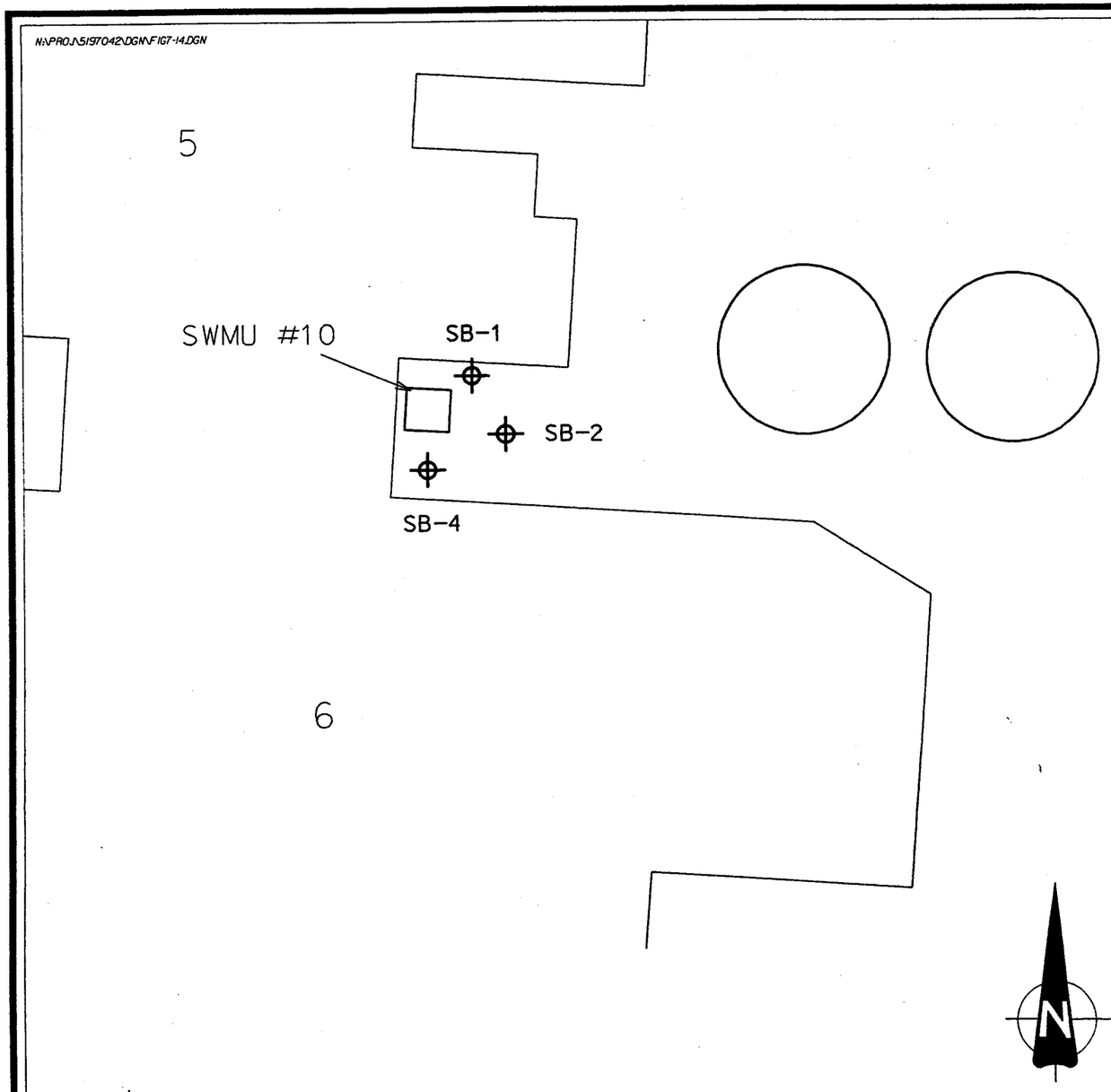
		SOIL BORING ID (SAMPLE DEPTH INTERVAL)		
		SB-1	SB-2	SB-3
VOCs	Acetone	ND	51 ppb	140 ppb
	PCE	28 ppb	9.4 ppb	ND
PAH	Phenathrene	5 ppb	ND	ND
METALS	Arsenic	ND	6.6 ppm	8.8 ppm
	Barium	180 ppm	140 ppm	190 ppm
	Cadmium	ND	ND	ND
	Chromium	31 ppm	12 ppm	15 ppm
	Lead	14 ppm	11 ppm	13 ppm
	Mercury	0.05 ppm	0.05 ppm	0.06 ppm
	Selenium	ND	2.3 ppm	ND

NOTE: ND = CONSTITUENT NOT DETECTED

Figure 7-13
MAXIMUM VOC/PAH/METAL CONCENTRATIONS FOR SWMU No. 31 SOIL SAMPLES
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL

N:\PROJ\5197042\DGN\FIG7-14.DGN



		SOIL BORING ID		
		SB-1	SB-2	SB-4
VOC	Acetone	16 ppb	51 ppb	140 ppb
PAH	TOTAL PAHs	75 ppb	223 ppb	326 ppb
METALS	Arsenic	11 ppm	12 ppm	ND
	Barium	97 ppm	150 ppm	290 ppm
	Cadmium	ND	ND	ND
	Chromium	15 ppm	20 ppm	15 ppm
	Lead	14 ppm	18 ppm	19 ppm
	Mercury	0.03 ppm	0.03 ppm	ND
	Selenium	0.96 ppm	1 ppm	1.6 ppm

SB-1 RFI SOIL BORING

NOT TO SCALE

Figure 7-14
MAXIMUM VOC /PAH /METAL CONCENTRATIONS FOR SWMU No. 10 SOIL SAMPLES
McDONNELL DOUGLAS FACILITY
HAZELWOOD, MO

QST ENVIRONMENTAL

8.0 Preliminary Human Health and Ecological Risk Assessment

The overall objective of the preliminary risk assessment was to provide a determination of the potential magnitude of risk to human health and the environment associated with the actual or potential release of constituents from the Facility, specifically SWMU No. 17. This preliminary risk assessment provides an initial evaluation of the potential risk associated with SWMU No. 17 and helps to identify those areas that may require additional investigation. The risk assessment is considered to be preliminary at this time because additional investigative work may potentially be required. This preliminary evaluation was based on the data available as of June 1998, as described in previous sections of this Report.

The preliminary risk assessment was composed of four separate components which were collectively integrated to meet the previously referenced objective. The components of the preliminary risk assessment included:

- Identification of COCs;
- Exposure Assessment;
- Toxicity Assessment; and
- Risk Characterization.

8.1 Constituents of Concern

Constituents at the Facility have been identified from samples of soil and groundwater. Over 35 constituents have been detected in soil and groundwater samples collected at the Facility. This significant number of constituents precluded a detailed risk analysis for each constituent detected or suspected of being present. At the same time, it is critical that the risk analysis evaluate 99 percent of the potential risks associated with the Facility (USEPA, 1989). As a result, it is necessary to identify a list of constituents that will be used to estimate exposures and to characterize the potential risk associated with the site. Therefore, COCs were identified to represent the most potentially hazardous constituents for receptors that may be exposed. Potential health risks evaluated for these COCs are expected to account for 99 percent of the total risk associated with the site.

The methodology for the selection of COCs utilized a risk-based screening procedure. As specified in Section 4.0, the risk-based screening process included a comparison of site data to ITLs. The COCs were identified by comparing the maximum detected concentrations for the analytical soil and groundwater data collected from each SWMU to the ITLs. Those constituents whose maximum concentrations exceeded the ITLs were selected as COCs for the preliminary risk assessment.

Based on this comparison process, only SWMU No. 17 possessed constituent concentrations which exceeded ITLs.

The selected soil and groundwater COCs for SWMU No. 17 are presented in Tables 8-1 and 8-2, respectively. For each COC, the detection frequency, minimum and maximum detected concentrations, as well as the mean and upper 95 percent confidence levels (UCL_{95}) are presented. Data used in calculating the means and UCL_{95} were included based on criteria in the Guidelines for Data Useability in Risk Assessment (USEPA, 1990). Data were first grouped according to media and source area. For soils, the data were also grouped by sample depth. Soil samples were collected from depths ranging from 2.5-45 ft bls. Since exposure to soils deeper than 14 ft bls are unlikely even in the event of future excavation activities, the soil data were grouped into shallow (< 14 ft bls) and deep (> 14 ft bls) categories. When a constituent concentration value was not positive or estimated, one-half of the reported detection limit was used in the statistical calculation of the mean, standard deviation and UCL_{95}. All statistical calculations were performed in accordance with USEPA guidance (USEPA, 1992).

8.2 Exposure Assessment

The exposure assessment uses the site description and constituent characterization presented in previous sections to identify potentially exposed human and ecological populations, identify potential exposure pathways, and calculate estimated exposure levels of the constituents of concern. Behavioral and physiological factors influencing exposure frequency and levels are presented in a series of exposure scenarios as a basis for quantifying exposure levels for each identified exposure pathway. The results of the exposure analysis are applied in the assessment of human and ecological risks in subsequent sections.

This section includes a discussion of migration mechanisms and potential human health and ecological exposure pathways.

The approach taken in the actual calculation of exposure is to provide a discussion of each of the critical exposure routes that have been determined to be potentially significant at the Facility. Appendix C presents the exposure algorithms, and key exposure assumptions used in this preliminary risk assessment. The exposure calculations are presented in Appendix D. This approach is intended to assist the reader in understanding the methodology and rationale used in the analysis without burdening the text with numerous calculation tables.

8.2.1 Migration Mechanisms

Constituents detected at the Facility may migrate off-site or may remain persistent at the site. The COCs (i.e., VOCs) are expected to be relatively mobile and may be transported from soil to the shallow groundwater. Once in the groundwater, these mobile constituents may be transported downgradient.

The COCs at the Facility may potentially migrate toward downgradient receptor locations and may be transported to other environmental media. COCs in the soil may remain persistent in the source areas or may be transported via the following major migration pathways:

- Soil to groundwater;
- Soil to surface water;
- Soil to sediment; and
- Soil to air.

In addition, once the COCs have migrated to other media, additional transport may potentially occur. For the Facility, this additional transport is expected to include the groundwater to air and groundwater to surface water pathways. Due to their low K_{oc} values, many of the volatile organic COCs are expected to be weakly adsorbed to the soils and sediments. As a result, mobility of these organics is expected.

Based on the available information, groundwater appears to be the major constituent migration pathway. Constituents may leach from soil into groundwater and eventually migrate off-site.

Other pathways such as volatilization from soil and groundwater and groundwater discharge to surface water are also expected to be significant. The physical and chemical properties of the constituents present at the Facility suggest that volatilization, oxidation, biodegradation, and soil adsorption are all important fate processes that may affect the migration of constituents.

8.2.2 Human Health Exposure Pathways

The analysis of exposure to human receptors is a complex process involving the use of numerous exposure assumptions. The assessment of pathways by which human receptors may be exposed to COCs at the Facility includes an examination of existing current exposure routes as well as those that may reasonably be expected to occur in the future. The determination of exposure routes is made by a careful examination of the current extent of affected media at the site and the results of the fate and transport assessment for predicting constituent migration pathways and estimating future exposure point concentrations.

The preliminary potential exposure routes have been identified for the Facility.

Potential exposure routes for human receptors at the Facility include:

- Ingestion Pathway - This pathway includes ingestion of soil or surface water;
- Dermal Absorption Pathway - This pathway includes dermal absorption of constituents of concern from soil, groundwater, and surface water; and

- Inhalation Pathway - This pathway includes inhalation of dusts (emitted from surface soils) and vapors (volatilization from soil).

Based on information currently available, these exposure pathways are expected to account for the majority of exposure and risk associated with the Facility and are quantified in this preliminary risk assessment. Other exposure pathways are possible, however, they are not expected to contribute significantly to the overall estimate of exposure and risk.

The exposure assessment estimates the total intake of COCs that the key receptor groups are expected to receive over various exposure periods. The key human receptor groups include:

- Current Workers;
- Future Workers; and
- Recreational Users.

Current worker activity includes only maintenance or Facility workers. Potential exposure for both types of workers is very limited.

- Maintenance Workers: Maintenance workers are responsible for routine landscaping (i.e., grass cutting) and other minor repair activities. Maintenance workers may be required to perform duties across the entire Facility.
- Facility Workers: Facility workers are responsible for the operation of Facility processes and are more likely to be assigned to a single location at the Facility.

Current exposures at SWMU No. 17 are only expected for the inhalation pathway or a result of volatilization from COCs present in subsurface soils. Other exposure pathways for the current worker were eliminated from consideration because the entire unit is covered with pavement. The pavement acts as a barrier and effectively eliminates potential exposure to soils through ingestion, dermal absorption, and dust inhalation.

Since future use of the Facility is not known at this time, the future worker exposure was separated into several possible scenarios based on possible future land use conditions. Future on-site receptors may include maintenance workers, Facility workers, or construction/utility workers.

Construction/utility workers may be required to perform intensive soil excavation, trenching or other construction activity during a specified time period. Consequently, future exposures could occur through all potential exposure routes.

Recreational activity is limited to Coldwater Creek. Recreational receptors may include both adults and children who utilize Coldwater Creek for recreational activity.

There is no known recreational use of Coldwater Creek in the vicinity of the site. However, for purposes of this analysis, it was hypothetically assumed that limited future recreation activity may potentially occur. Recreational receptors may include both adults and children who may utilize Coldwater Creek for recreational activities. Potential future recreational exposure is expected to be very limited and generally incidental in nature due to the limited access and size of Coldwater Creek in the vicinity of the site.

8.2.3 Ecological Exposure Pathways

The characterization of exposure is a key element of any ecological risk assessment. Although constituent stressors may be present, if receptors are not exposed to these constituents, no adverse effects would be anticipated. Exposure assessments evaluate the ways in which potential constituent intake occurs at the identified exposure point(s). It is important to consider the fact that the Facility is located in a heavily industrialized urban area and contains a relatively limited area for potential ecological exposure. The Facility has minimal habitat to support wildlife species of interest.

The entire length of Coldwater Creek has been designated as a Metropolitan No-Discharge Stream. Consequently, no water contaminants except uncontaminated cooling water, permitted stormwater discharges, and excess wet-weather bypass discharges may be discharged to Coldwater Creek.

Generalized potential exposure pathways by which terrestrial and aquatic organisms may come into contact with COCs at the Facility include:

- Ingestion of or dermal contact with soils by soil invertebrates or wildlife;
- Ingestion of or dermal contact with surface water; and
- Ingestion of or dermal contact with sediments by benthic invertebrates or wildlife;

Terrestrial animals would likely be exposed on an intermittent basis. Aquatic species of animals and plants are generally inescapably immersed in the water medium. Water soluble constituents can enter an aquatic organism through the body surfaces (dermal and ocular), gills, and mouth. Therefore, any COCs associated with the surface water may provide a direct exposure route for aquatic organisms.

Uptake by and bioaccumulation within the food web may represent an additional exposure pathway to aquatic and terrestrial organisms. Lower-trophic-level organisms, both aquatic and terrestrial, generally are exposed to COCs through direct contact with their environment and/or through ingestion of soil or plants. When these organisms are then consumed by predators, any constituents that have accumulated in their tissues are transferred into the predators.

For purposes of this preliminary risk evaluation, potential exposure of terrestrial organisms will not be qualitatively assessed due to the lack of terrestrial habitat and limited exposure potential. Potential

exposure of aquatic organisms is quantitatively assessed for potential ingestion and dermal contact. Bioaccumulation of COCs by aquatic and terrestrial organisms associated with the Facility will not be quantitatively assessed at this time.

8.3 Toxicity Assessment

In evaluating potential human health risks, both carcinogenic and noncarcinogenic health effects must be considered. Excessive exposure to any chemical constituent may potentially produce noncarcinogenic health effects, while the potential for carcinogenic effects is limited to exposure to certain substances. Therefore, it is necessary to identify and select noncarcinogenic health criteria for each COC to be evaluated in the risk assessment, and to identify and select carcinogenic health criteria only for those COCs that have evidence of carcinogenicity.

The criteria that are used in the evaluation of potential carcinogenic risks are carcinogenic slope factors (CSFs) that have been typically developed by the USEPA. The carcinogenic potency of a substance depends, in part, on its route of entry into the body (e.g., ingestion, inhalation, or dermal absorption). Therefore, slope factors are classified according to the route of administration, depending on the experimental or epidemiological data from which they were derived. Ideally, route-specific slope factors should be used to evaluate the potential carcinogenic risk posed by each carcinogen through each exposure route of concern. However, in reality, only a limited number of cancer slope factors have been derived, and many may exist for only one route of exposure.

Each potential COC detected at the Facility with evidence of carcinogenicity in animals and/or humans and classified by the USEPA as a carcinogen is considered to be carcinogenic in this risk assessment. The USEPA has developed oral and/or inhalation slope factors for some carcinogens (USEPA, 1998; USEPA, 1997). Dermal slope factors have not been derived for any constituents. In the absence of dermal slope factors, the slope factors for oral exposure were used to evaluate the dermal route. Although few data are available concerning the carcinogenic activity of substances that are systemically absorbed through exposure, the applied oral slope factors, when used in conjunction with a conservative absorption factor are expected to provide a conservative estimate of potential risk of systemic cancer through dermal exposure. In accordance with USEPA (1989), the oral slope factor was divided by the carcinogenic constituent's ingestion absorption efficiency to estimate the dermal slope factor.

The criteria used to evaluate the potential for noncarcinogenic health effects are generally referred to as Reference Doses (RfDs). RfDs, like CSFs, are developed for specific exposure routes. RfDs have been derived by the USEPA for a number of constituents for the oral and/or inhalation routes of exposure, but have not been developed for the dermal route. When available, route-specific RfDs were used for each constituent. Oral RfDs were used to evaluate toxicity associated with the dermal

exposure pathways. In accordance with USEPA (1989), the oral RfD was multiplied by the noncarcinogenic constituent's ingestion absorption efficiency to estimate the dermal RfD.

The available USEPA oral and inhalation health effects criteria for the COCs at the Facility are presented in Tables 8-3 and 8-4. The oral RfDs and oral CSFs for the COCs are shown on Table 8-3 with the carcinogenic classification for each carcinogenic COC. The inhalation RfDs, and inhalation CSFs for the COCs are shown on Table 8-4. The derived dermal health effects criteria for the COCs are presented in Table 8-5.

Ecological Toxicity Criteria

The environmental toxicity of the COCs is assessed using available water quality criteria. The primary source of surface water quality criteria for Coldwater Creek are the Missouri Water Quality Criteria. However, Missouri criteria are not available for each COC that may potentially impact Coldwater Creek. Consequently, other guidance such as USEPA Water Quality Standards, and USEPA Ecotox Thresholds (ETs) were used as appropriate.

The Missouri Water Quality Criteria for protection of aquatic life as well as the USEPA Water Quality Standards and ETs are intended to protect 95 percent of the aquatic organisms, including fish, invertebrates, and aquatic plants. Therefore, not only fish, but also other aquatic organisms are also protected. Consequently, a comparison of the maximum predicted surface water concentrations with these criteria will be used to determine the likelihood of adverse effects to aquatic life. The available water quality criteria for the COCs discharging to Coldwater Creek are presented in Table 8-6.

8.4 Preliminary Risk Characterization

The objectives of characterizing potential risk are to integrate information developed in the exposure assessment and the toxicity assessment into a complete evaluation of the potential human health and environmental risks associated with COCs detected in samples collected at the Facility. This preliminary risk assessment evaluates the nature and degree of risk to potential human health and environmental receptors described in Section 8.2. Potential risk estimates are derived for individual COCs and for the total COC contribution from SWMU No. 17 to identify the media and COCs posing the most significant concerns. The results of the preliminary risk characterization are used to develop recommendations for future investigations. The methods used in the risk analysis are those presented in the USEPA Risk Assessment Guidance for Superfund: Human Health Evaluation Manual (1989).

Potential human health and environmental risks were determined for each of the exposure pathways described in Section 8.2. The potential human health risks were evaluated separately for noncarcinogenic and carcinogenic effects. Carcinogenic compounds were also evaluated for their noncarcinogenic effects. The potential human health risks were evaluated for the Facility based on the

exposure assumptions presented in Appendix C. The potential environmental risks were evaluated for the Facility on the basis of predicted surface water concentrations in Coldwater Creek as presented in Appendix C.

Following the description of the potential risks associated with exposures to COCs at SWMU No. 17, the uncertainties associated with the preliminary risk analysis are presented. These uncertainties may be attributable to lack of monitoring data, incomplete understanding of the mechanisms involved in constituent transport, assumptions used in the exposure assessment, or a lack of toxicological information for a particular constituent.

Potential human health risks are presented independently for carcinogenic and noncarcinogenic constituents because of the different toxicological endpoints, relevant exposure durations, and methods employed in characterizing potential risk.

8.4.1 Preliminary Human Health Risks

Incidental potential human health risks associated with exposure to carcinogenic constituents of concern were calculated based on USEPA (1986) Guidelines for Carcinogenic Risk Assessment, and USEPA (1986) Guidelines for the Health Risk Assessment of Chemical Mixtures. Potential cancer risks were first calculated for individual constituents by multiplying exposure levels of each constituent by the appropriate CSF (CSFs are discussed in Section 8.3) as follows:

$$Risk = I \times CSF$$

where: Risk = Probability of an individual developing cancer,
I = Chronic daily chemical intake averaged over a lifetime of 70 years (mg/kg-day), and
CSF = Slope factor, expressed in $(mg/kg\text{-}day)^{-1}$ (CSFs are presented in Tables 8-10, 8-11, 8-12)

Although estimating potential risk by considering one chemical at a time might significantly under estimate the potential risks associated with simultaneous exposures to several substances, the total combined potential health risks were also evaluated for each pathway by summing estimates derived for each compound for that pathway as follows:

$$Risk_T = \Sigma Risk_i$$

where: $Risk_T$ = The total cancer risk, expressed as a unitless probability, and
$Risk_i$ = The risk estimate for the i^{th} substance.

The additive approach is in accordance with USEPA guidelines on chemical mixtures in which potential risks associated with carcinogens are considered additive. Thus, risks from inhalation, dermal absorption, and oral exposures can be added to estimate the total overall potential risk to human receptors as follows:

Total Exposure Cancer Risk =

Risk (exposure pathway 1) + Risk (exposure pathway 2) . . . + Risk (exposure pathway I)

The site-specific potential carcinogenic risk estimates were based on the exposure factors presented in Appendix C. To provide a perspective on the potential risks associated with SWMU No. 17, the magnitude of the potential cancer risks associated with the known or suspected carcinogens detected at the site were compared to the USEPA acceptable cancer risk range of 1.0E-04 to 1.0E-06. Acceptable exposure levels are the residual concentration levels that represent an excess cancer risk to an individual of between 1.0E-04 to 1.0E-06 [55 Federal Register (FR) 46:8848, March 8, 1990] based on the dose and response information for the particular constituent. The National Contingency Plan (NCP) has identified an excess upper-bound lifetime cancer risk of 1.0E-06 as the point of departure for determining the need for remediation of constituents that do not have applicable or relevant and appropriate requirements (ARARs) or for which an ARAR is not sufficiently protective because of the presence of multiple constituents or multiple pathways of exposure (55 FR 46:8848, March 8, 1990).

The measure used to describe the potential for noncarcinogenic toxicity to occur in an individual is not expressed as a probability. The potential for noncarcinogenic effects is evaluated by comparing an exposure level over a specified time period (e.g., the daily dose in mg/kg/day for a long period up to a lifetime) with an RfD derived for a similar period (USEPA, 1989).

This ratio of exposure to toxicity is called a noncarcinogenic hazard index (HI) and is calculated as follows:

$$\textit{Noncancer Hazard Index (HI)} = \frac{E}{RfD}$$

where: E = Exposure level (or chemical intake averaged over the duration of exposure), and

RfD = RfDs (discussed in Section 8.3)

The HI assumes that there is a level of exposure (i.e., RfD) below which it is unlikely for even sensitive populations to experience adverse health effects (USEPA, 1989). If the exposure level exceeds the threshold level (i.e., if E/RfD exceeds unity or HI > 1.0), there may be a concern for potential noncarcinogenic effects. As with the carcinogenic constituent evaluation, estimating noncancer hazard potential by considering one constituent at a time might significantly under estimate

the potential risks associated with simultaneous exposures for each pathway. By summing estimates derived for each constituent, the total pathway HI is calculated as follows:

$$HI = \frac{E_1}{RfD_1} + \frac{E_2}{RfD_2} + \ldots + \frac{E_i}{RfD_i}$$

where: E_i = Exposure level (dose) for the i^{th} constituent,
RfD_i = Reference dose for the i^{th} constituent.

This additive approach assumes that multiple subthreshold exposures could result in an adverse effect and that the magnitude of the effect is proportional to the sum of the ratios of the exposure to acceptable exposures. The assumption of additivity is applicable to constituents that induce the same type of effect. If the total HI is greater than unity, constituents are reevaluated by critical effect, and separate HIs are calculated by type of effect. The possible effects of multimedia exposures are evaluated by summing the HI values for the relevant exposure routes.

As an HI approaches 10-3,000, the uncertainty in the RfD is greatly reduced because of the safety margin incorporated in the RfD (on the order of 10-3,000 to account for animal-to-human dose extrapolations and species-to-species differences) has been reduced or eliminated. Therefore, an HI ranging from 10-3,000 not only indicates that chronic effects are posed to potential human receptors, but acute and subchronic effects may also be posed.

The potential on-site and off-site human health risk estimates associated with the Facility are presented in detail in Appendix D. Following is a discussion of the preliminary potential health risks associated with SWMU No. 17. The potential risks are specific to the previously presented exposure scenarios.

Potential Risks Associated with SWMU No. 17

The potential risks associated with SWMU No. 17 are presented in Table 8-7.

Current maintenance workers may be potentially exposed to volatile COCs in subsurface soil through the vapor inhalation pathway. The total adult worker HIs for the current maintenance worker range from 7E-03 to 2E-02. Since the total HIs are less than unity, there is no concern for potential noncarcinogenic health effects for the current maintenance worker at SWMU No. 17. The total potential carcinogenic risk levels for the current maintenance worker range from 2E-08 to 2E-07. Since these cancer risk estimates are below the target range (1E-04 to 1E-06), there is no potential unacceptable carcinogenic health risk associated with the current maintenance worker.

Current Facility workers may be potentially exposed to volatile COCs in subsurface soil through the vapor inhalation pathway. The total adult worker HIs for the current Facility worker range from

7E-03 to 6E-02. Since the total His are less than unity, there is no concern for potential noncarcinogenic health effects for the current Facility worker at SWMU No. 17. The total potential carcinogenic risk levels for the current Facility worker range from 5E-08 to 5E-07. Since these risk estimates are below the target range (1E-04 to 1E-06), there is no potential unacceptable carcinogenic health risk associated with the current Facility worker.

Future maintenance workers may be potentially exposed to COCs through soil ingestion, soil dermal absorption, as well as dust and vapor inhalation. Future maintenance workers may also be potentially exposed through ingestion and dermal absorption of surface water in Coldwater Creek. The total adult worker HIs for the future maintenance worker range from 5E-02 to 5E-01. Since the total HIs are less than unity, there is no concern for potential noncarcinogenic health effects for the future maintenance worker at SWMU No. 17. The total potential carcinogenic risk levels for the future maintenance worker range from 5E-07 to 5E-06. Since these risk estimates are below or within the target range (1E-04 to 1E-06), there is no potential unacceptable carcinogenic health risk associated with the future maintenance worker.

Future Facility workers may be potentially exposed to COCs through soil ingestion, soil dermal absorption, as well as dust and vapor inhalation. Future Facility workers may also be potentially exposed through ingestion and dermal absorption of surface water in Coldwater Creek. The total adult worker HIs for the future Facility worker range from 1E-01 to 1E-00. Since the total HIs are less than or equal to unity, there is no concern for potential noncarcinogenic health effects for the future Facility worker at SWMU No. 17. The total potential carcinogenic risk levels for the future Facility worker range from 2E-06 to 2E-05. Since these risk estimates are within the target range (1E-04 to 1E-06), there is no potential unacceptable carcinogenic health risk associated with the future Facility worker.

Future construction/utility workers may be potentially exposed to COCs through soil ingestion, soil dermal absorption, as well as dust and vapor inhalation. Construction/utility workers may also be exposed to COCs through dermal absorption of groundwater. The total adult worker HIs for the future construction/utility worker range from 4E00 to 1E00. Since the total HIs exceed unity, there is a concern for potential noncarcinogenic health effects for the future construction/utility worker at SWMU No. 17. The estimated inhalation of PCE vapor and dermal absorption of PCE and TCE from groundwater accounts for approximately 99 percent of the total HI. The total potential carcinogenic risk levels for the future construction/utility worker range from 1E-04 to 3E-04. Since these risk estimates exceed the target range (1E-04 to 1E-06), there is a potential for unacceptable carcinogenic health risks associated with the future construction/utility worker at SWMU No. 17. The dermal absorption of PCE, TCE, and vinyl chloride from groundwater accounts for approximately 99 percent of the total potential carcinogenic risk estimate.

Future Recreational User Preliminary Risk Estimates

Future recreational users of Coldwater Creek may be exposed to concentrations of COCs in surface water. Exposures may occur through ingestion and dermal absorption of COCs in surface water. The total potential noncarcinogenic and carcinogenic risks associated with these human health exposures are summarized in Table 8-8.

The total adult and child recreational user His range from 5E-16 to 1E-15, and from 1E-15 to 4E-15, respectively. Since the pathway-specific and total His are less than unity, there is no concern for potential noncarcinogenic health effects. The total recreational user potential lifetime carcinogenic health risk levels range from 9E--19 to 3E-18. Since each cancer risk estimate is below the acceptable range (1E-04 to 1E-06), there is no potential unacceptable carcinogenic health risk associated with future recreational use of Coldwater Creek.

Potential environmental risks to aquatic receptors are quantified by comparing the estimated media exposure concentrations derived in Section 8.2. This comparison is described as an Ecotoxicity Quotient (EQ) which can be expressed as:

$$EQ = \frac{C_{med}}{TC_{med}}$$

where: C_{med} = Concentration of the constituent in the medium (i.e., mg/L), and
TC_{med} = Toxicity criteria for the constituent in the same medium (i.e., mg/L).

If the constituent concentration exceeds the toxicity criteria, then the potential for an adverse ecological effect is suggested. If the EQ exceeds unity, the species of concern may be at risk to an adverse effect from that constituent.

In addition, a cumulative EQ (EQ_{cum}) is developed to determine whether a species of concern will receive excessive exposure to a mixture of constituents from each route of exposure and is developed as follows:

$$EQ_{cum} = EQ_{const\ A} + EQ_{const\ B} + EQ_{const\ C} + \ldots + EQ_{const\ X}$$

If the EQ_{cum} is greater than 1.0, it is suggested that the total exposure to all constituents of concern through all exposure pathways is sufficient to produce a potential risk of adverse effects to the species of concern.

The critical toxicity values presented in Section 8.3 incorporate a number of safety factors, and wherever possible, conservative assumptions (i.e., assumptions that would over-estimate the dose)

were made in the exposure assessment. Therefore, an EQ that exceeds unity (i.e., EQ > 1.0) does not necessarily indicate that an adverse effect will occur.

The potential ecological risk estimates associated with the SWMU No. 17 are presented in Table 8-9. Ecological receptors (aquatic life) in Coldwater Creek may be exposed to COCs in surface water discharging from groundwater.

The total cumulative aquatic life EQs for surface water exposure are estimated to range from 4E-15 to 1E-14. Since these estimates are less than unity, there is no potential for unacceptable ecological risks to aquatic life in Coldwater Creek.

8.4.2 Uncertainties Associated with Preliminary Risk Assessment

The goal of an uncertainty analysis in a risk assessment is to provide to the appropriate decision-makers (i.e., risk managers) a wide range of information about risk assessment assumptions, their inherent uncertainty and variability, and the effect of uncertainty and variability on the estimate of risk. This subsection discusses the uncertainties in the preliminary risk analysis for the Facility. The major impact of the uncertainty analysis is that the predicted potential risks are relative in nature and do not represent an absolute quantification. This is an important point that is vital to the proper interpretation and understanding of the potential risks presented in this report.

For any potential risk to exist, both exposure to the constituents of concern and toxicity at the predicted exposure levels must be present. The risk equation requires an estimation of the dose that a hypothetical individual might receive from constituents associated with the Facility. As discussed in earlier sections, exposure scenarios were developed to allow calculation of the exposure and ultimately the potential risk. These exposure scenarios are based on a number of assumptions that are common or standard in most risk assessments of this type. These assumptions are designed to be conservative and may likely over-estimate exposure. The following paragraphs discuss these exposure assumptions in some detail.

A number of assumptions were made in this risk analysis that are designed to over-estimate exposure in areas where the available data make more specific quantification difficult or impossible. It is inherent in these assumptions that the actual case would clearly result in lower exposure relative to the hypothetical. The assumptions are presented in detail in Appendix C. The exposure estimates include assumptions concerning exposure point concentrations, fate and transport modeling, and pathway specific exposure parameters. Each category of assumption has an effect resulting in either an over- or under-estimation of potential risk at the Facility.

The data available to characterize the COCs at each source area included a percentage of nondetected samples with elevated detection limits. When a constituent was not detected in a sample, half of the detection limit was used in the calculation of the mean and UCL_{95} concentrations for that constituent. Consequently, the maximum concentrations detected were occasionally much lower than the calculated UCL_{95} concentrations. This methodology may result in an over-estimation of potential risk.

Data were not available for several exposure pathways which were quantified in this preliminary risk assessment. Constituents in air (dust and vapors) were not measured. In addition, groundwater data was used to predict surface water concentrations downgradient of the site. The use of models and other assumptions to calculate constituent concentrations increases data uncertainty. Generally, the models used are conservative and tend to predict higher concentrations in dust, vapors and surface water than would likely occur over time. As a result of these conservative assumptions, the potential risks to some human receptors may have been over-estimated by as much as one or two orders of magnitude and consequently, there is a high degree of uncertainty associated with the analysis.

Exposure associated with the future construction/utility worker scenario may have also contributed to an overestimate of risk. The soil ingestion rate of 480 mg/day for the construction/utility worker is much higher than would actually be expected. While the construction/utility worker is expected to come into direct contact with contaminated soils, actual exposure through soil ingestion is only anticipated to occur through incidental hand to mouth contact. Actual soil ingestion for the construction/utility worker is expected to be only slightly higher than the typical worker ingestion rate of 50 mg/day. Consequently, construction/utility worker risks associated with the soil ingestion pathway may have been over-estimated.

In addition to the exposure assumptions, certain assumptions related to the human health and ecological toxicity assessment also contribute to uncertainty in this preliminary risk assessment. The human health toxicological uncertainties primarily relate to the methodology by which both carcinogenic and noncarcinogenic criteria are developed. The no-threshold theory of cancer development assumes that there is no "safe" level of exposure to any constituent that has been shown or suspected to cause cancer. The assumption is that even if relatively large doses of a constituent were required to cause cancer in laboratory animals, the data can be extrapolated down many orders of magnitude to estimate slope factors for humans. The logic behind this assumption is that it is not known if a threshold exists (an uncertainty), the proper approach is to assume a worst-case theory of cancer formation so that it is very unlikely that the risk can be under-estimated. With the noncarcinogenic criteria, a variety of uncertainty factors are typically applied to existing data to determine levels at which no effects are expected. The application of order-of-magnitude uncertainty factors results in a likelihood that potential risks will be over-estimated.

Overall, there is a high potential that this preliminary risk assessment has resulted in an over-estimation of potential human health and ecological risks at the Facility. Future work should focus on the refinement of those assumptions that contribute to these uncertainties.

TABLE 8-1

SUMMARY OF SOIL COCs FOR SWMU 17
McDonnell Douglas RFI

CONSTITUENT	Detection Frequency	Range Minimum (mg/kg)	Range Maximum (mg/kg)	Mean (mg/kg)	Distribution	95% UCL (mg/kg)
Shallow Soil Data (<14 feet)						
cis-1,2-Dichloroethene	7/13	<0.0063	3.2	0.315	Lognormal	6.48
trans-1,2-Dichloroethene	1/13	<0.0063	0.0228	0.00474	Lognormal	0.00611
Tetrachloroethene	11/13	<0.0063	200	20.5	Lognormal	11800000
1,1,2-Trichloroethane	0/6	<0.0063	<0.0066	0.00318	Normal	0.00323
Trichloroethene	3/6	<0.0063	0.064	0.0211	Normal	0.0428
Deep Soil Data (>14 feet)						
cis-1,2-Dichloroethene	6/9	<0.0062	11.9	1.38	Lognormal	2790
trans-1,2-Dichloroethene	1/9	<0.0062	9.5	1.06	Lognormal	443
Tetrachloroethene	5/9	<0.0062	240	33.5	Lognormal	1.10E+16
1,1,2-Trichloroethane	2/6	<0.0065	0.28	0.0519	Normal	0.144
Trichloroethene	5/6	<0.0065	10.1	3.31	Normal	7.02

TABLE 8-2

SUMMARY OF GROUNDWATER COCs FOR SWMU 17
McDonnell Douglas RFI

CONSTITUENT	Detection Frequency	Range Minimum (mg/L)	Range Maximum (mg/L)	Mean (mg/L)	Distribution	95% UCL (mg/L)
Benzene	1/6	<0.005	0.021	0.006	Normal	0.0118
1,1-Dichloroethene	4/6	<0.005	0.180	0.039	Normal	0.0963
cis-1,2-Dichloroethene	5/6	<0.005	97.0	18.900	Normal	50.5
trans-1,2-Dichloroethene	5/6	<0.005	0.150	0.04490	Normal	0.090
Tetrachloroethene	3/6	<0.005	210	44.8	Normal	113
Toluene	2/6	<0.005	12.5	2.1	Normal	6.29
1,1,2-Trichloroethane	1/6	<0.005	0.290	0.05040	Normal	0.147
Trichloroethene	4/6	<0.005	140	3E+01	Normal	72.4
Vinyl Chloride	2/6	<0.01	25.0	4E+00	Normal	12.7

TABLE 8-3

NON-CARCINOGENIC AND CARCINOGENIC ORAL HUMAN HEALTH EFFECTS CRITERIA FOR SOIL AND GROUNDWATER COCs
McDonnell Douglas RFI

CONSTITUENT	Chronic Oral RfD (mg/kg/day)	Subchronic Oral RfD (mg/kg/day)	Oral CSF $(mg/kg/day)^{-1}$	Carcinogenic Class
Benzene	1.7E-03 (r)	NA	2.9E-02 (i)	A
1,1-Dichloroethene	9.0E-03 (i)	9.0E-03 (h)	6.0E-01 (i)	C
cis-1,2-Dichloroethene	1.0E-02 (h)	1.0E-01 (h)	NA	D
trans-1,2-Dichloroethene	2.0E-02 (i)	2.0E-01 (h)	NA	D
Tetrachloroethene	1.0E-02 (i)	1.0E-01 (h)	5.2E-02 (n)	B
Toluene	2.0E-01 (i)	2.0E+00 (h)	NA	D
1,1,2-Trichloroethane	4.0E-03 (i)	4.0E-02 (h)	5.7E-02 (i)	C
Trichloroethene	6.0E-03 (n)	NA	1.1E-02 (n)	B
Vinyl Chloride	NA	NA	1.9E+00 (h)	A

i = IRIS, 1997
h = HEAST, 1997
n = provisional value (NCEA, 1996)
r = route to route extrapolation

TABLE 8-4

NON-CARCINOGENIC AND CARCINOGENIC INHALATION HUMAN HEALTH EFFECTS CRITERIA FOR SOIL AND GROUNDWATER COCs
McDonnell Douglas RFI

CONSTITUENT	Chronic Inhalation RfD (mg/kg/day)	Subchronic Inhalation RfD (mg/kg/day)	Inhalation CSF $(mg/kg/day)^{-1}$	Carcinogenic Class
Benzene	1.7E-03 (n)	NA	2.9E-02 (i)	A
1,1-Dichloroethene	9.0E-03 (r)	NA	1.2E+00 (h)	C
cis-1,2-Dichloroethene	1.0E-02 (r)	NA	NA	D
trans-1,2-Dichloroethene	2.0E-02 (r)	NA	NA	D
Tetrachloroethene	1.0E-02 (r)	NA	2.0E-03 (n)	B
Toluene	1.1E-01 (h)	NA	NA	D
1,1,2-Trichloroethane	4.0E-03 (r)	NA	5.7E-02 (h)	C
Trichloroethene	6.0E-03 (r)	NA	6.0E-03 (n)	B
Vinyl Chloride	NA	NA	3.0E-01 (h)	A

i = IRIS, 1997
h = HEAST, 1997
n = provisional value (NCEA, 1996)
r = route to route extrapolation

TABLE 8-5

NON-CARCINOGENIC AND CARCINOGENIC DERMAL HUMAN HEALTH EFFECTS CRITERIA
FOR SOIL AND GROUNDWATER COCs
McDonnell Douglas RFI

CONSTITUENT	Chronic Dermal RfD[1] (mg/kg/day)	Subchronic Dermal RfD[2] (mg/kg/day)	Dermal CSF[3] (mg/kg/day)-[1]	Carcinogenic Class
Benzene	1.6E-03	NA	3.1E-02	A
1,1-Dichloroethene	9.0E-03	9.0E-03	6.0E-01	C
cis-1,2-Dichloroethene	1.0E-02	1.0E-01	NA	D
trans-1,2-Dichloroethene	2.0E-02	2.0E-01	NA	D
Tetrachloroethene	1.0E-02	1.0E-01	5.2E-02	B
Toluene	2.0E-01	2.0E+00	NA	D
1,1,2-Trichloroethane	4.0E-03	4.0E-02	5.7E-02	C
Trichloroethene	6.0E-03	NA	1.1E-02	B
Vinyl Chloride	NA	NA	1.9E+00	A

[1] = Chronic Oral RfD multiplied by ingestion absorbtion efficiency (AEi)
[2] = Subchronic Oral RfD multiplied by ingestion absorbtion efficiency (AEi)
[3] = Oral CSF divided by ingestion absorption efficiency (AEi)

TABLE 8-6

AVAILABLE WATER QUALITY CRITERIA FOR THE SURFACE WATER COCs
McDonnell Douglas RFI

CONSTITUENT	MISSOURI SURFACE WATER QUALITY GUIDELINES [1] (mg/L)	USEPA WATER QUALITY STANDARDS (mg/L)	USEPA ECOTOX THRESHOLDS (mg/L)
Benzene	0.071	0.53 [2]	0.045
1,1-Dichloroethene	NA	1.16 [2]	NA
cis-1,2-Dichloroethene	NA	1.16 [2]	NA
trans-1,2-Dichloroethene	NA	1.16 [2]	NA
Tetrachloroethene	NA	0.84 [3]	0.12
Toluene	NA	1.75 [2]	0.13
1,1,2-Trichloroethane	NA	9.4 [3]	NA
Trichloroethene	NA	21.9 [3]	0.35
Vinyl Chloride	NA	NA	NA

[1] Criteria for protection of aquatic life
[2] Value presented is one tenth of reported freshwater acute Lowest Observed Effect Level (LOEL)
[3] Value presented is the reported freshwater chronic LOEL

Source: MDNR, 1993
USEPA, 1992
USEPA, 1996

TABLE 8-7

SUMMARY OF PRELIMINARY POTENTIAL HUMAN HEALTH RISKS AT SWMU No. 17
McDonnell Douglas RFI

Exposure Scenario/Pathway	Hazard Index		Cancer Risk Level	
	RAE	RME	RAE	RME
Current Maintenance Workers				
Vapor Inhalation	7E-03	2E-02	2E-08	2E-07
Total	**7E-03**	**2E-02**	**2E-08**	**2E-07**
Current Facility Workers				
Vapor Inhalation	7E-03	6E-02	5E-08	5E-07
Total	**7E-03**	**6E-02**	**5E-08**	**5E-07**
Future Maintenance Workers				
Soil Ingestion	1E-04	1E-03	2E-08	2E-07
Soil Dermal Absorption	3E-04	3E-03	6E-08	5E-07
Dust Inhalation	1E-07	1E-06	8E-13	7E-12
Vapor Inhalation	5E-02	5E-01	4E-07	4E-06
Surface Water Ingestion	5E-17	1E-16	8E-20	2E-19
Surface Water Dermal Absorption	1E-16	4E-16	1E-19	4E-19
Total	**5E-02**	**5E-01**	**5E-07**	**5E-06**
Future Facility Workers				
Soil Ingestion	1E-03	1E-02	2E-07	2E-06
Soil Dermal Absorption	3E-03	3E-02	6E-07	5E-06
Dust Inhalation	7E-07	3E-06	2E-12	2E-11
Vapor Inhalation	1E-01	1E+00	1E-06	1E-05
Surface Water Ingestion	5E-17	1E-16	8E-20	2E-19
Surface Water Dermal Absorption	1E-16	4E-16	1E-19	4E-19
Total	**1E-01**	**1E+00**	**2E-06**	**2E-05**
Future Construction/Utility Workers				
Soil Ingestion	1E-04	1E-03	9E-09	8E-08
Soil Dermal Absorption	4E-05	4E-04	3E-09	3E-08
Dust Inhalation	5E-08	5E-07	1E-14	1E-13
Vapor Inhalation	2E-01	2E+00	7E-08	7E-07
Groundwater Dermal Absorption	4E+00	1E+01	1E-04	3E-04
Total	**4E+00**	**1E+01**	**1E-04**	**3E-04**

TABLE 8-8

SUMMARY OF PRELIMINARY POTENTIAL HUMAN HEALTH RISKS FOR RECREATIONAL USERS OF COLDWATER CREEK
McDonnell Douglas RFI

Exposure Scenario/Pathway	Hazard Index		Cancer Risk Level *	
	RAE	RME	RAE	RME
Recreational Users				
Coldwater Creek				
Surface Water Ingestion - Adult	1E-16	4E-16	4E-19	1E-18
-Child	6E-16	2E-15	*	*
Surface Water Dermal Absorption - Adult	4E-16	1E-15	5E-19	2E-18
- Child	8E-16	2E-15	*	*
TOTAL Recreational User - Adult	**5E-16**	**1E-15**	**9E-19**	**3E-18**
- Child	**1E-15**	**4E-15**	*	*

* Lifetime cancer risk estimate. Childhood cancer risks are included in values presented for the adult.

TABLE 8-9

SUMMARY OF PRELIMINARY POTENTIAL ECOLOGICAL RISKS
McDonnell Douglas RFI

Constituent	Ecotoxicity Quotient	
	RAE	RME
Benzene	2E-31	4E-31
1,1-Dichloroethene	4E-74	1E-73
cis-1,2-Dichloroethene	4E-15	1E-14
trans-1,2-Dichloroethene	9E-18	2E-17
Tetrachloroethene	6E-29	2E-28
Toluene	5E-103	2E-102
1,1,2-Trichloroethane	1E-33	4E-33
Trichloroethene	2E-19	6E-19
Vinyl Chloride	NC	NC
Total EQ	**4E-15**	**1E-14**

NC - No Criteria

9.0 Summary and Conclusions

Using the RFI results, this section presents SWMU-specific summaries and conclusions for each of the five units evaluated at the Facility. In addition, recommendations for future Corrective Action are provided.

9.1 SWMU-Specific Summaries

9.1.1 Summary of RFI Results for SWMU No. 17

RFI field investigation tasks were conducted at SWMU No. 17 to (1) characterize the nature and extent of any potential hazardous waste/constituent releases to soil, (2) assess the nature and extent of similar releases to groundwater, and 3) evaluate the potentiometric groundwater surface beneath this unit.

Summary of Soil Results for SWMU No. 17

Through the utilization of investigative soil borings, PID field screening, and soil analyses, the horizontal extent of impacted soils at SWMU No. 17 was defined. The highest VOC (and PCE) concentrations were detected at soil boring locations within the most interior portions of the unit (SB-1, SB-2, SB-3, and SB-4). Soil samples from SB-4, SB-1, and SB-2 exhibited the highest PCE concentrations of 240 ppm, 58 ppm, and 18 ppm, respectively. In addition to the structural impediment of Building 51 to the north and west of the unit, delineation of impacted soils was confirmed based on results in the unsaturated zone for soil samples from SB-5 and SB-10 to the east and SB-8 to the southwest.

Although collected from saturated intervals, soil samples from a deeper boring (SB-9) were also analyzed. While PCE was not detected in any of the SB-9 samples, several other VOC constituents were detected. Saturated soil samples from SB-9 exhibited maximum concentrations of 12 ppm TCE and 0.38 ppm 1,1,2-trichloroethane at approximately 26 ft bls.

Analytical results for SWMU No. 17 soil samples indicated that the most impacted intervals corresponded with materials in the saturated zone (groundwater table typically ranged from 1-6 ft bls at this SWMU). As a result, a significant portion of the noted soil impacts are attributable to the very shallow nature of the groundwater table at SWMU No. 17.

The low acetone and methylene chloride concentrations detected are likely to represent a laboratory artifact, as opposed to an accurate representation of soil conditions at SWMU No. 17.

Based on field observations, soil samples from SB-5 and SB-6 to the northeast of SWMU No. 17 were also analyzed for other non-RCRA related parameters. Soil samples from the saturated unit for SB-5 and SB-6 exhibited GRO concentrations of 180 ppm and 25 ppm, and TPH concentrations of 1,900 ppm and 450 ppm, respectively.

Seven of eight heavy metal constituents were detected for soil samples acquired from SWMU No. 17 for analysis of metals. None of the maximum detected concentrations from the unit (20 ppm arsenic, 310 ppm barium, 0.9 ppm cadmium, 22 ppm chromium, 16 ppm lead, 0.56 ppm mercury, and 1.6 ppm selenium) exceeded their respective ITLs. As a result, metals were eliminated from further consideration with respect to soil impacts at SWMU No. 17.

Analytical results for the soil samples collected from SWMU No. 17 indicated that several VOCs exceeded their respective ITLs. As a result, the following soil-associated COCs at SWMU No. 17 were retained for evaluation in the preliminary risk assessment:

- VOCs (5): cis-1,2-DCE, trans-1,2-DCE, PCE, 1,1,2-trichloroethane, and TCE.

Using the soil constituent concentrations detected at SWMU No. 17, the preliminary risk assessment concluded that only PCE presents a potential health risk for the vapor inhalation exposure scenario. As a result, PCE has been retained as the only COC for further evaluation purposes as part of any future Corrective Action efforts for impacted soils. As previously stated, a significant portion of the soil impacts are best addressed as groundwater issues due to the very shallow nature of the groundwater table at SWMU No. 17.

Summary of Groundwater Results for SWMU No. 17

Groundwater elevation measurements were utilized to evaluate the direction and flowrate of shallow groundwater beneath SWMU No. 17. All three potentiometric surface maps demonstrate general flow of groundwater toward the east and Coldwater Creek. Very low flow gradients are also indicated.

Groundwater analytical results were utilized to characterize and delineate the extent of groundwater impacts at SWMU No. 17. Three of the sampling locations which exhibited the highest VOC concentrations were situated within and immediately downgradient to the unit (TP-1, TP-2, and MW-5). Groundwater samples from TP-1, TP-2, and MW-5 exhibited the highest total VOC concentrations of 308 ppm, 58 ppm, and 146 ppm, respectively. The groundwater sample from TP-4 along the southwest corner of the unit also contained 17 ppm total VOCs. A downgradient boundary was established to the northeast of SWMU No. 17 where no VOCs were detected from TP-3.

PCE and several degradation products including TCE and cis-1,2-DCE were detected at the highest concentrations. Groundwater samples from TP-1 and TP-2 exhibited the highest PCE concentrations

of 210 ppm and 45 ppm, respectively. Located approximately 70 feet downgradient (east) from TP-1, the groundwater sample from deep well MW-5 exhibited the highest TCE concentration of 140 ppm.

Analytical results for the adjacent shallow and deep monitoring wells (MW-6 and MW-5, respectively) were also compared. Detected VOCs for the two wells were similar. However, the TCE concentration for the deep well MW-5 (140 ppm) was significantly higher than the comparable value for MW-6 (0.37 ppm). Vinyl chloride was detected only at MW-5 (0.25 ppm) and MW-6 (0.94 ppm).

The low acetone and methylene chloride concentrations detected are likely to represent a laboratory artifact, as opposed to an accurate representation of groundwater conditions at SWMU No. 17.

Five of eight heavy metal constituents were detected for the groundwater sample acquired from SWMU No. 17 for analysis of metals. None of the detected concentrations from the unit (0.037 ppm arsenic [total], 0.44 ppm barium [total], 0.44 ppm barium [dissolved], 0.0042 ppm lead [total], 0.00034 ppm mercury [dissolved], and 0.011 ppm selenium [dissolved]) exceeded their respective ITLs. As a result, metals were eliminated from further consideration with respect to groundwater impacts at SWMU No. 17.

The groundwater sample from TP-4 to the southwest of the unit exhibited the only noteworthy field parameter values. pH and conductivity values of 12.9 and 101,000 μs/cm, respectively, indicate the presence of potentially abnormal groundwater conditions at this location.

Analytical results for the groundwater samples collected from SWMU No. 17 indicated that several VOCs exceeded their respective ITLs. As a result, the following groundwater-associated COCs at SWMU No. 17 were retained for evaluation in the preliminary risk assessment:

- VOCs (8): benzene, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, 1,1,2-trichloroethane, TCE, and vinyl chloride.

Using the groundwater constituent concentrations detected at SWMU No. 17, the preliminary risk assessment concluded that PCE, TCE, and vinyl chloride present potential health risks for the dermal absorption exposure scenario. As a result, these three VOCs (PCE, TCE, and vinyl chloride)have been retained as COCs for further evaluation purposes as part of any future Corrective Action efforts for impacted groundwater.

9.1.2 Summary of RFI Results for SWMU No. 21

RFI field investigation tasks were conducted at SWMU No. 21 to characterize the nature and extent of any potential hazardous waste/constituent releases to soil or groundwater beneath the unit. Analytical

results for the twelve soil samples and one groundwater sample collected from the unit were compared to constituent-specific ITL values to evaluate the potential presence of unacceptable concentrations.

Based on PID/visual observations, the deeper soil sample from the southeast corner of SWMU No. 21 (SB-5) was submitted for additional VOC and fuel-related analyses. Acetone was the only VOC constituent detected in the soil sample collected from SWMU No. 21 for analysis of VOCs. The very low concentration detected (19 ppb) is likely to represent a laboratory artifact, as opposed to an accurate representation of soil conditions at SWMU No. 21. Irregardless, the detected concentration did not exceed the ITL value for acetone.

This soil sample from SB-5 was also analyzed for other non-RCRA related parameters. The sample exhibited a GRO concentration of 93 ppm and a TPH concentration of 200 ppm. However, MD has never utilized hydrocarbon-related constituents in this area and is not aware of any potential sources.

Seven of eight heavy metal constituents were detected for soil samples acquired from SWMU No. 21. None of the maximum detected metals concentrations from the unit (13 ppm arsenic, 200 ppm barium, 0.7 ppm cadmium, 25 ppm chromium, 96 ppm lead, 0.22 ppm mercury, and 1.7 ppm selenium) exceeded their respective ITLs.

Five of eight heavy metal constituents were detected for the groundwater sample acquired from SWMU No. 21. None of the detected concentrations from the unit (1.3 ppm barium [total], 0.35 ppm barium [dissolved], 0.17 ppm chromium [total], 0.075 ppm lead [total], 0.00028 ppm mercury [total], 0.031 ppm selenium [total], and 0.0064 ppm [dissolved]) exceeded their respective ITLs.

Cyanide was not detected in any of the twelve soil samples or singular groundwater sample collected from SWMU No. 21.

Based on the results described above, no further Corrective Actions are planned for SWMU No. 21.

9.1.3 Summary of RFI Results for SWMU No. 26

RFI field investigation tasks were conducted at SWMU No. 26 to characterize the nature and extent of any potential hazardous waste/constituent releases beneath the unit. Analytical results for the seven soil samples collected from the unit were compared to constituent-specific ITL values to evaluate the potential presence of any unacceptable soil concentrations. Per the RFI Workplan, soil boring SB-1 was advanced to a maximum depth of 13 ft bls in an effort to collect a groundwater sample. Groundwater was not encountered, hence groundwater samples could not be collected.

Acetone was the only VOC constituent detected in soil samples collected from SWMU No. 26. The low concentrations detected (ND - 73 ppb) are likely to represent a laboratory artifact, as opposed to an accurate representation of soil conditions at SWMU No. 26. Irregardless, none of the detected concentrations exceeded the ITL value for acetone.

Seven of eight heavy metal constituents were detected for samples acquired from SWMU No. 26. None of the maximum detected metals concentrations from the unit (9 ppm arsenic, 220 ppm barium, 22 ppm chromium, 15 ppm lead, 0.04 ppm mercury, and 3 ppm selenium) exceeded their respective ITLs.

Based on the results described above, no further Corrective Actions are planned for SWMU No. 26.

9.1.4 Summary of RFI Results for SWMU No. 31

RFI field investigation tasks were conducted at SWMU No. 31 to characterize the nature and extent of any potential hazardous waste/constituent releases to soil beneath the unit. Analytical results for the six soil samples collected from the unit were compared to constituent-specific ITL values to evaluate the potential presence of any unacceptable constituent concentrations.

PCE and acetone were the only VOCs detected in soil samples collected from SWMU No. 31. PCE was detected in three of the six soil samples at very low concentrations ranging from 8 ppb - 28 ppb. The low acetone concentrations detected (ND - 140 ppb) are likely to represent a laboratory artifact, as opposed to an accurate representation of soil conditions at SWMU No. 31. Irregardless, none of the detected concentrations exceeded the respective ITL values for PCE or acetone.

Phenanthrene was the only PAH constituent detected in soil samples collected from SWMU No. 31. The shallower soil sample from SB-1 exhibited a very low concentration of 5.07 ppb. Phenanthrene was not detected in any of the other five samples from this unit. The detected value did not exceed the ITL for phenanthrene.

Six of eight heavy metal constituents were detected for samples acquired from SWMU No. 31. None of the maximum detected metals concentrations from the unit (9 ppm arsenic, 190 ppm barium, 31 ppm chromium, 14 ppm lead, 0.06 ppm mercury, and 2 ppm selenium) exceeded their respective ITLs.

Based on the results described above, no further Corrective Actions are planned for SWMU No. 31.

9.1.5 Summary of RFI Results for SWMU No. 10

RFI field investigation tasks were conducted at SWMU No. 10 to characterize the nature and extent of any potential hazardous waste/constituent releases to soil beneath the unit. Analytical results for the five soil samples collected from the unit were compared to constituent-specific ITL values to evaluate the potential presence of any unacceptable constituent concentrations.

Acetone was the only VOC constituent detected in soil samples collected from SWMU No. 10. The low concentrations detected (ND - 140 ppb) are likely to represent a laboratory artifact, as opposed to an accurate representation of soil conditions at SWMU No. 10. Irregardless, none of the detected concentrations exceeded the ITL value for acetone.

Eleven (11) ubiquitous PAH constituents were detected in soil samples collected from SWMU No. 10; all eleven represent ubiquitous polynuclear aromatic hydrocarbons (PAHs). None of the maximum detected PAH concentrations from the unit (6 ppb anthracene, 17 ppb benzo(a)anthracene, 15 ppb benzo(a)pyrene, 115 ppb benzo(b)fluoranthene, 30 ppb benzo(g,h,i)perylene, 14 ppb chrysene, 84.2 ppb dibenzo(a,h)anthracene, 16 ppb fluoranthene, 16 ppb indeno(1,2,3-cd)pyrene, 56.7 ppb fluoranthene, and 43.4 ppb pyrene) exceeded their respective ITLs.

Six of eight heavy metal constituents were detected for samples acquired from SWMU No. 10. None of the maximum detected metals concentrations from the unit (12 ppm arsenic, 290 ppm barium, 20 ppm chromium, 19 ppm lead, 0.03 ppm mercury, and 2 ppm selenium) exceeded their respective ITLs.

Based on the results described above, no further Corrective Actions are planned for SWMU No. 10.

9.2 Recommendations for Future Corrective Action

Based on the results of the RFI, future Corrective Measures are only warranted for SWMU No. 17. The results from the preliminary risk assessment will be used to guide continuing Corrective Action efforts for this unit including the development of risk-based soil and groundwater cleanup standards, as needed.

MD will initially prepare a CMS/CMI Workplan to define a systematic approach for evaluating potential CMs. As specified in the Facility Permit, this CMS/CMI Workplan will be prepared within 60 days following MDNR approval of this RFI Report.

As part of the CMS/CMI Workplan, MD anticipates evaluating CMs which incorporate institutional controls. Institutional control CMs will be evaluated to address potential exposure to impacted soil and

groundwater at SWMU No. 17. These CMs will focus on construction restrictions, access restrictions, etc. as a means of minimizing/eliminating contact with impacted soil and groundwater media.

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Appendix A

Soil Boring and Piezometer/Monitoring Well Logs

QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER: SWMU No. 17 SB-1

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 17
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN 02/04/98
DATE COMPLETED 02/04/98
HOLE DIAMETER 2 in
TOTAL DEPTH 17 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING 14.5 ft

SHEET 1 OF 1

COMMENTS
Temporary piezometer TP1 installed.
Top-of-casing elevation: 100.54
Screen: 6 ft., 0.010-in. slot

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	LITHOLOGY
0						ASPHALT, 0-1 ft
1						FILL, 1-2 ft
2						SILTY CLAY, 2-5 ft, dark brown grading to yellow brown, stained, dry
3		S17 SB-1 2-5-3	75%	330	CL	
4						
5						NO RECOVERY, 5-9 ft
6						
7			5%	119		
8						
9						SILTY CLAY, 9-13 ft, light grey, grey-brown, moist, soft, iron staining
10						
11						
12		S17 SB-1 12-13		150	CL	
13						SILTY CLAY, 13-17 ft, light grey, grey-brown, wet, petroleum-like sheen
14					CL	
15			Not Recorded			
16		S17 SB-1 16-17		3595		
17						
18						
19						
20						

QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER: SWMU No. 17 SB-2

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 17
DRILLING COMPANY Petro-Probe
DRILLING METHOD #1 GeoProbe
DRILLING METHOD #2 None
SAMPLING METHOD #1 Macro-core w/ 4 ft liner
SAMPLING METHOD #2 None
GEOLOGIST Scott George

DATE BEGUN 02/04/98
DATE COMPLETED 02/04/98
HOLE DIAMETER 2 in
TOTAL DEPTH 12.5 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING 10 feet

SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0.0						ASPHALT, 0-0.5 ft	
1.0			70%	5	CL	SILTY CLAY, 0.5 - 3 ft, dark brown, firm, dry	
2.0				14			
3.0		S17 SB-2 3-4.5				SILTY CLAY, 3-10 ft, light grey-brown, yellow, mottled, slightly moist grading to very moist	
4.0							
5.0			50%		CL		
6.0				16			
7.0				13			
8.0							
9.0					CL		
10.0			50%	39		SILTY CLAY, 10-12.5 ft, light grey, mottled, iron stains, wet	
11.0		S17 SB-2 11-12.5'					
12.0							
13.0							
14.0							
15.0							
16.0							
17.0							
18.0							
19.0							
20.0							

QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER: SWMU No. 17 SB-3

PROJECT NUMBER: 5197-042
PROJECT NAME: McDONNELL DOUGLAS
SITE LOCATION: ST. LOUIS, MISSOURI
BORING LOCATION: SWMU No. 17
DRILLING COMPANY: Petro-Probe
DRILLING METHOD *1: GeoProbe
DRILLING METHOD *2: None
SAMPLING METHOD *1: Macro-core w/ 4 ft liner
SAMPLING METHOD *2: None
GEOLOGIST: Scott George

DATE BEGUN: 02/04/98
DATE COMPLETED: 02/04/98
HOLE DIAMETER: 2 in
TOTAL DEPTH: 12.5 ft
GROUND SURFACE ELEVATION: NA
NORTH COORDINATE: NA
EAST COORDINATE: NA
WATER LEVEL DURING DRILLING: 10 ft

SHEET: 1 OF: 1

COMMENTS
Temporary piezometer TP2 installed.
Top-of-casing elevation: 99.99
Screen: 6 ft., 0.010-in. slot

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	LITHOLOGY
0 0						ASPHALT, 0-1 ft
1 0			60%	14		FILL, 1-4 5 ft, asphalt, gravel, sand, clay
2 0						
3 0						
4 0						
5 0			5%			FILL, 4 5-8 5 ft, gravel in sampler
6 0						
7 0						
8 0						
9 0						SILTY CLAY, 8 5-12 5, grey-brown, mottled yellow brown, wet, soft
10 0					CL	
11 0		S17 SB-3 10 5-11 5		14		
12 0						
13 0						
14 0						
15 0						
16 0						
17 0						
18 0						
19 0						
20 0						

OST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER: SWMU No. 17 SB-4

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 17
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN 02/04/98
DATE COMPLETED 02/04/98
HOLE DIAMETER 2 in
TOTAL DEPTH 21 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING 6 ft & 16.5 feet

SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0.0						ASPHALT, 0-1 ft	
1.0			30%			FILL, 1-4 ft	
2.0							
3.0							
4.0				39		CLAY FILL, 4-4.5 ft, dark brown	
5.0						CLAY, 4.5-8.5 ft, grey to loight grey, soft, wet at 6 ft	
6.0		S17 SB-4 6'-7'	85%		CL		
7.0							
8.0				14			
9.0						NO RECOVERY, 8.5-11.5 ft	
10.0			25				
11.0							
12.0		S17 SB-4 11.5'-13.5'			CL	SILTY SANDY CLAY, 11.5-13.5 ft, dark grey, slightly moist, slightly silty and sandy	
13.0							
14.0			80%			SILTY CLAY, 14-16 ft, dark grey, moist to very moist, soft	
15.0		S17 SB-4 14-16			CL		
16.0						CLAY, 16-18.5 ft, dark grey, wet, very soft	
17.0					CL		
18.0			80%				
19.0					CL	CLAY, 18.5-21 ft, grey, soft	
20.0							
21.0							

QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER SWMU No. 17 SB-5

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 17
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN 02/04/98
DATE COMPLETED 02/04/98
HOLE DIAMETER 2 in
TOTAL DEPTH 12.5 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING 8.5 feet

SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0 0 1 0 2 0 3 0 4 0 5 0 6 0 7 0 8 0 9 0 10 0 11 0 12 0 13 0 14 0 15 0 16 0 17 0 18 0 19 0 20 0			25% 75% 0%	3 77 100	CL	ASPHALT, 0-0 5 ft FILL, 0 5-4 5 ft, bricks, rock, dark brown, grey clay at base CLAY, 4 5-8 5 ft, dark grey grading to light grey, soft, damp, petroleum like odor NO RECOVERY, 8 5-12 5 ft, wet, 100 ppm on groundwater headspace, droplets of apparent product (dark, oily) on core barrel	

OST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER
		SWMU No. 17 SB-6

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 17
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN 02/05/98
DATE COMPLETED 02/05/98
HOLE DIAMETER 2 in
TOTAL DEPTH 12.5 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING 9.5 ft

SHEET 1 OF 1

COMMENTS
Temporary piezometer TP3 installed.
Top-of-casing elevation: 101.33
Screen: 6 ft., 0.010-in. slot

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	LITHOLOGY
0 0						ASPHALT, 0-1 ft
1 0						FILL, 1-4 5 ft, asphalt, gravel, some clay
2 0			60%	2		
3 0						
4 0						
5 0						SILTY CLAY, 4 5-8 5 ft, grey, uniform, damp to very damp, strong petroleum-like odor
6 0				80	CL	
7 0			80%	105		
8 0						
9 0						SILTY CLAY, 8 5-12 5 ft, grey, dark grey, wet, strong petroleum-like odor
10 0		S17 SB-6 9 5'- 11'	80%		CL	
11 0				100		
12 0						
13 0						
14 0						
15 0						
16 0						
17 0						
18 0						
19 0						
20 0						

QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER
		SWMU No. 17 SB-7

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 17
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN 02/06/98
DATE COMPLETED 02/06/98
HOLE DIAMETER 2 in
TOTAL DEPTH 32.5 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING 6-25 ft

SHEET 1 OF 1

COMMENTS
Temporary piezometer TP4 installed.
Top-of-casing elevation: 99.96
Screen: 6 ft., 0.010-in. slot
No samples collected for chemical analysis.

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	
0 0						ASPHALT 0-0 5 ft
1 0			75%			FILL 0 5-4 ft, asphalt, gravel, sslightly moist to very moist
2 0						
3 0						
4 0				171		SILTY CLAY, 4-8 5 ft, dark grey, some black, mottled, wet
5 0						
6 0			75%	118	CL	
7 0						
8 0						FILL, 8 5-12 5 ft, gravel, clay at base, wet, poor recovery
9 0			25%			
10 0						
11 0				43		
12 0						SILTY CLAY, 12 5-15 ft, dark grey-brown, soft, slightly sandy, wet, occasional wood fragments
13 0			75%			
14 0				47	CL	
15 0						SILTY CLAY, 15-17 ft, dark olive grey to balck (5Y 3/2), dark brown (10YR 2/2), moist to wet, occasional wood
16 0				44	CL	
17 0						CLAY, 17-20 ft, dark grey, soft, uniform, wet, plastic
18 0			75%			
19 0				6	CL	
20 0						CLAY, 20-25 ft, light to medium grey, tight, hard, plastic, moist to wet
21 0						
22 0			50%			
23 0					CL	
24 0				1		
25 0						CLAY, 25-32 5 ft, grey (5Y, 5I), moist, hard, very plastic
26 0				7		
27 0			50%			
28 0						
29 0				2	CL	
30 0						
31 0			50%			
32 0						
33 0						
34 0						
35 0						

LITHOLOGY

OST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER: SWMU No. 17 SB-8

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 17
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN 02/06/98
DATE COMPLETED 02/06/98
HOLE DIAMETER 2 in
TOTAL DEPTH 12.5 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING 10 ft

SHEET 1 OF 1

COMMENTS
Boring headspace: 6-7 ft: 34 ppm
7-8.5 ft: 4 ppm
11.5-12.5 ft: 4 ppm

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	LITHOLOGY
0.0						ASPHALT, 0-0.5 ft
1.0			50%			FILL, 0.5-4.5 ft, gravel
2.0						
3.0						
4.0				0		
5.0						NO RECOVERY, 4.5-6 ft
6.0	■	S17 SB-8 6'7'	60%	11	CL	SILTY CLAY, 6-8.5 ft, grey-brown, yellow brown, mottled, moist
7.0						
8.0						
9.0			70%	0		NO RECOVERY, 8.5-9.5 ft
10.0						SILTY CLAY, 9.5-12.5 ft, grey-brown, yellow brown, mottled, wet, soft
11.0					CL	
12.0	■	S17 SB-8, 11.5, 12.5				
13.0						
14.0						
15.0						
16.0						
17.0						
18.0						
19.0						
20.0						

OST Inc.	FIELD BOREHOLE LOG	WELL ID: MW-5 (SWMU No. 17 SB-9)

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 17
DRILLING COMPANY OST, Inc.
DRILLING METHOD *1 10.25" HSA
DRILLING METHOD *2 4.25 HSA
SAMPLING METHOD *1 Split spoon
SAMPLING METHOD *2 Split spoon
GEOLOGIST Scott George

DATE BEGUN 04/20/98
DATE COMPLETED 04/21/98
HOLE DIAMETER 14 inches and 8 inches
TOTAL DEPTH 45 ft
WELL CASING ELEVATION 100.7
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING Not recorded

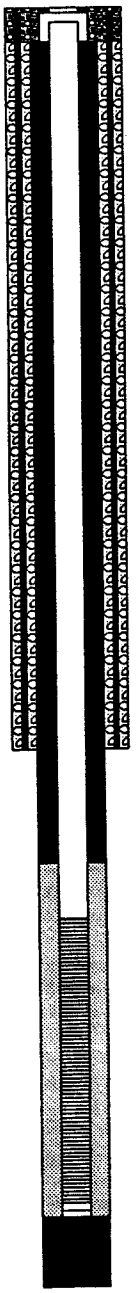
SHEET 1 OF 1

WELL CONSTRUCTION DATA
WELL CONSTRUCTION 2-in PVC; 10-ft 0.01 slot screen
SCREENED INTERVAL 32 - 42 ft
SAND PACK INTERVAL 30 - 42.5 ft
BENTONITE SEAL INTERVAL 30 - surface
OUTER PVC CASING *1 10-in from 0 - 26 ft
OUTER PVC CASING *2 None*

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	
0			Not Recorded	4		ASPHALT, 0-0 5
1						FILL, 0-2 5 ft, gravel, clay, black
2				25		SILTY CLAY, 2 5-3 5 ft, light to dark brown, slightly damp, petroleum-like odor
3						AUGERED THROUGH, 3 5-24 ft, OVM up to 37 ppm on cuttings
4			Augered Through			
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24			50%	1185	CL	CLAY, 24-30 ft, grey-green, plastic, hard, damp to slightly damp
25						
26				2117		
27		S17 SB-9 27-28				
28				855		
29						
30						CLAY, 30-36 ft, grey-green, occ brown mottling, firm to hard, occ soft
31						
32				668	CL	
33						
34		S17 SB-9 34-35		544		
35				222		
36						CLAY, 36-40 5 ft, grey-green, occ brown mottling, soft to firm, damp to moist, occ softer and damper zones
37		S17 SB-9 37-38	Not Recorded	289	CL	
38						
39						
40				116	CL	CLAY, 40 5-42 ft, very moist to wet, soft
41		S17 SB-9 41-42		86	CL	CLAY, 42-43 ft, grey-green, very plastic, hard
42					CL	CLAY, 43-45 ft, varied grey-black layered sediments, moist
43						
44		S17 SB-9 44-45		56		
45						

LITHOLOGY

WELL CONSTRUCTION



QST Inc.	FIELD BOREHOLE LOG	WELL ID: MW-6 (SWMU No. 17 SB-10)

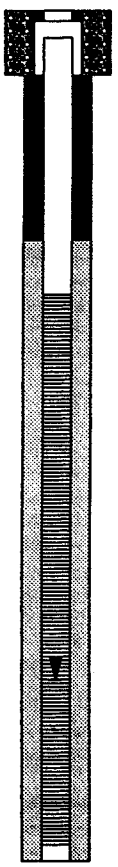
PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 17
DRILLING COMPANY QST, Inc.
DRILLING METHOD *1 4.25" HSA
DRILLING METHOD *2 None
SAMPLING METHOD *1 Split spoon
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN 04/20/98
DATE COMPLETED 04/20/98
HOLE DIAMETER 8 inches
TOTAL DEPTH 15 ft
WELL CASING ELEVATION 100.33
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING 12 ft
SHEET 1 OF 1

WELL CONSTRUCTION DATA
WELL CONSTRUCTION 2-in PVC; 10-ft 0.01 slot screen
SCREENED INTERVAL 5 - 15 ft
SAND PACK INTERVAL 4 - 15 ft
BENTONITE SEAL INTERVAL 4 - 1
OUTER PVC CASING *1 None
OUTER PVC CASING *2 None

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	LITHOLOGY
0 0						ASPHALT, 0-0 5 ft
1 0						FILL, 0 5-1 5 ft, gravel
2 0				30		SILTY CLAY, 1 5-4 ft, black to dark brown, slightly damp
3 0					CL	
4 0	■	S17 SB-10 4'-5'		133		SILTY CLAY, 4-10 ft, dark to light grey grading to light medium brown, mottled, slightly moist, soft, slight to moderate plasticity, petroleum-like odor
5 0					CL	
6 0				1185		
7 0						
8 0						
9 0	■	S17 SB-10 9-10'	Not Recorded	24		
10 0						NO RECOVERY, 10-11 ft
11 0	■	S17 SB-10 10 5-11 5'		2		CLAY, 11-13 5 ft, dark to light grey grading to light medium brown, mottled, wet, soft to very soft, slight to moderate plasticity
12 0					CL	
13 0						
14 0	■	S17 SB-10 14-15				CLAY, 13 5-15 ft, dark to light grey, organic, wood, dry to slightly damp
15 0				0	CL	
16 0						
17 0						
18 0						
19 0						
20 0						

WELL CONSTRUCTION



QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER
		SWMU No. 21 SB-1

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 21
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

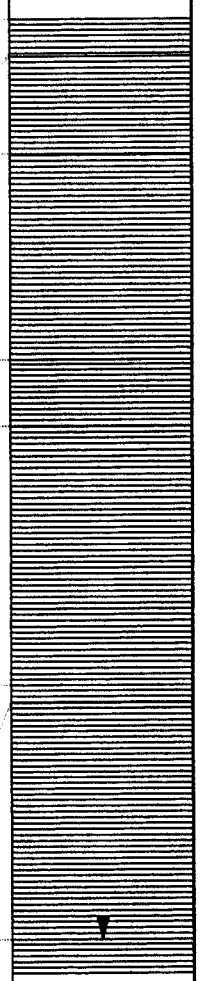
DATE BEGUN 02/02/98
DATE COMPLETED 02/02/98
HOLE DIAMETER 2 in
TOTAL DEPTH 28 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING 27 ft

SHEET 1 OF 1

COMMENTS
Temporary piezometer TP1 installed.

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	
0 0	No Samples Collected		80%	0		CLAY LOAM, 0-1 ft, top soil, brown (10YR 3/4 to 3/6), occ plant material, dry
1 0				0		
2 0				0		
3 0				0	CL	CLAY, 1-4 ft, grey-brown (10YR 6/2 to 6/6), mottled, dry
4 0				0		
5 0				0		CLAY, 4-10 ft, grey-brown, grey (10YR 5/2), occ black (10YR 2/2), some green at base, occ iron staining, dry to slightly damp, slightly plastic
6 0				0		
7 0				0	CL	
8 0				0		
9 0				0		
10 0				0		
11 0				0	OL	CLAY, 10-12, dark grey-green (5Y 5/1), slightly damper, very thin laminates, organic, slightly plastic
12 0				0		CLAY, 12-19 5 ft, dark grey-green (5Y 5/1 to 5/2), slightly damp to damp, thinly laminated, light iron staining, organic, plastic, occ black mottling (5Y 2 5/1), occ wood w/ depth
13 0				0		
14 0				0		
15 0				0		
16 0				0	OL	
17 0				0		
18 0				0		
19 0						
20 0					OL	CLAY, 19 5-20 ft, light grey-brown-yellow (10YR 6/4, 6/6)
21 0				0		CLAY, 20-27 ft, grey-green (5Y 5/1 to 5/2), soft, damp grading to very damp at 24, damp to very dry from 24 to 27, and dry at . iron nodules, organic, occ black mottling yellow mottles at 24 ft (10YR 6/6 to 6/4, occ 6/8), occ iron staining
22 0				0		
23 0				0		
24 0				0	OL	
25 0				0		
26 0				0		
27 0				0	OL	CLAY, 27-28 ft, yellow-brown (10YR 6/6 to 5/6), wet, some silt and very fine sand
28 0						
29 0						
30 0						
31 0						
32 0						
33 0						
34 0						
35 0						

LITHOLOGY



OST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER SWMU No. 21 SB-2

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 21
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN 02/02/98
DATE COMPLETED 02/02/98
HOLE DIAMETER 2 in
TOTAL DEPTH 17 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING 13 ft

SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0 0						ASPHALT, 0-1 ft	
1 0		S21 SB-2 1'-2'	Not Recorded	0		CLAY, 1-13 ft, mostly black (5Y 2 5/1), very dark grey (5Y 3/1), some red mottling, dry to slightly damp w/ depth, slightly plastic from 5 ft, grades to a lighter grey (10YR 5/1) w/ yellow mottles (10YR 5/6) from 8 to 13 feet	
2 0				0			
3 0				0			
4 0				0			
5 0				0			
6 0				0			
7 0				0	CL		
8 0				0			
9 0				0			
10 0			80%	0			
11 0				0			
12 0				1			
13 0				0		CLAY, 13-17 ft, yellow-grey, occ black mottling (10YR 5/6, 5/3), wet	
14 0		S21 SB-2 13-15	Not Rec	1			
15 0					CL		
16 0							
17 0							
18 0							
19 0							
20 0							

QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER: SWMU No. 21 SB-3

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 21
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN 02/02/98
DATE COMPLETED 02/02/98
HOLE DIAMETER 2 in
TOTAL DEPTH 21 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING 17 ft

SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0.0						ASPHALT, 0-1 ft	
1.0						FILL, 1-3.5 ft, gravel and clay	
2.0				0			
3.0				1			
4.0		S21 SB-3 4'-5'		0		CLAY, 3.5-6 ft, grey and yellow (10YR 6/2 to 5/2), mottled, soft, slightly damp	
5.0				0	CL		
6.0				0		CLAY, 6-9 ft, grey and olive (5Y 4/1), soft, damp, occ black organic material, occ yellow iron stains	
7.0				0	CL		
8.0				0			
9.0				0		CLAY, 9-13 ft, grey-olive (5Y 5/1 to 5/2), soft, damp, slightly plastic, mottled as above, some fill material	
10.0				0			
11.0				0	CL		
12.0				0			
13.0				0		CLAY, 13-17 ft, grey-brown (5Y 5/1 to 5/2), occ olive and black, 10YR at base, soft, very damp to almost wet	
14.0				0			
15.0				0	CL		
16.0				0			
17.0						NO RECOVERY, 17-19 ft	
18.0				0			
19.0		S21 SB-3 17-21			CL	CLAY, 19-19.6 ft, olive-grey, very wet, poor recovery	
20.0						NO RECOVERY, 19.6-21 ft	
21.0							

Not Recorded — 10%

QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER: SWMU No. 21 SB-4

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 21
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN 02/02/98
DATE COMPLETED 02/02/98
HOLE DIAMETER 2 in
TOTAL DEPTH 9 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING 7 ft

SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0 0						ASPHALT, 0-1 ft	
1 0				1		FILL, 1-2 ft, gravel and clay	
2 0		S21 SB-4 2'-3'		0		CLAY, 2-5 ft, yellow-brown, mottled, dry to slightly damp, may be fill	
3 0				0			
4 0				0	CL		
5 0				1		CLAY, 5-9 ft, brown-grey, red-brown mottling from 5 to 7 ft(10YR 6/8), light grey from 7 to 9 ft (10YR 7/1 to 7/2), soft, wet	
6 0				0			
7 0				0	CL		
8 0		S21 SB-4 7'-9'		0			
9 0							
10 0							
11 0							
12 0							
13 0							
14 0							
15 0							
16 0							
17 0							
18 0							
19 0							
20 0							

Recovered
Not Recovered

QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER: SWMU No. 21 SB-5

PROJECT NUMBER: 5197-042
PROJECT NAME: McDONNELL DOUGLAS
SITE LOCATION: ST. LOUIS, MISSOURI
BORING LOCATION: SWMU No. 21
DRILLING COMPANY: Petro-Probe
DRILLING METHOD *1: GeoProbe
DRILLING METHOD *2: None
SAMPLING METHOD *1: Macro-core w/ 4 ft liner
SAMPLING METHOD *2: None
GEOLOGIST: Scott George

DATE BEGUN: 02/02/98
DATE COMPLETED: 02/02/98
HOLE DIAMETER: 2 in
TOTAL DEPTH: 16 ft
GROUND SURFACE ELEVATION: NA
NORTH COORDINATE: NA
EAST COORDINATE: NA
WATER LEVEL DURING DRILLING: 12 ft

SHEET: 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0 0						ASPHALT, 0-1 ft	
1 0						FILL, 1-2 ft, gravel and clay	
2 0		S21 SB-5 2'-4'	Not Recorded	0		CLAY FILL, 2-7 ft, dark brown, dry, firm	
3 0				0			
4 0							
5 0							
6 0							
7 0		S21 SB-5 7'-8'		32		CLAY, 7-12 ft, olive-grey slightly damp to damp, soft, petroleum odor	
8 0							
9 0							
10 0					CL		
11 0		S21 SB-5 10-12		95			
12 0			0%			NO RECOVERY, 12-16 ft, wet	
13 0							
14 0							
15 0							
16 0							
17 0							
18 0							
19 0							
20 0							

QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER
		SWMU No. 21 SB-6

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 21
DRILLING COMPANY Petro-Probe
DRILLING METHOD #1 GeoProbe
DRILLING METHOD #2 None
SAMPLING METHOD #1 Macro-core w/ 4 ft liner
SAMPLING METHOD #2 None
GEOLOGIST Scott George

DATE BEGUN 02/02/98
DATE COMPLETED 02/02/98
HOLE DIAMETER 2 in
TOTAL DEPTH 12 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING 10 ft

SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0.0							
1.0				0		FILL, 0-1 ft, top soil, gravel, brown clay	
2.0		S21 SB-6 2'-4'	Not Recorded	0		CLAY FILL, 1-8 ft, grey-brown, some gravel, slightly damp to dry	
3.0				0			
4.0				0			
5.0			40%	0			
6.0				0			
7.0				3			
8.0				0			
9.0			Not Recorded	0	CL	CLAY, 8-12 ft, olive-grey, soft, very wet at 10 ft	
10.0		S21 SB-6 10-12		0			
11.0				0			
12.0				0			
13.0							
14.0							
15.0							
16.0							
17.0							
18.0							
19.0							
20.0							

QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER: SWMU No. 26 SB-1

PROJECT NUMBER: 5197-042
PROJECT NAME: McDONNELL DOUGLAS
SITE LOCATION: ST. LOUIS, MISSOURI
BORING LOCATION: SWMU No. 26
DRILLING COMPANY: Petro-Probe
DRILLING METHOD *1: GeoProbe
DRILLING METHOD *2: None
SAMPLING METHOD *1: Macro-core w/ 4 ft liner
SAMPLING METHOD *2: None
GEOLOGIST: Scott George

DATE BEGUN: 02/03/98
DATE COMPLETED: 02/03/98
HOLE DIAMETER: 2 in
TOTAL DEPTH: 13 ft
GROUND SURFACE ELEVATION: NA
NORTH COORDINATE: NA
EAST COORDINATE: NA
WATER LEVEL DURING DRILLING: Not Encountered

SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0 0						ASPHALT, 0-1 ft	
1 0				0		FILL, 1-2 ft, gravel, clay	
2 0		S26 SB-1 2'-3'		0		CLAY, 2-5 ft, dark brown becoming lighter grey-brown, soft to firm, dry to slightly moist	
3 0				0	CL		
4 0				0			
5 0			Not Recorded			CLAY, 5-10 ft, grey (10YR 7/7) to yellow brown (10YR 7/6), soft to firm, slightly moist	
6 0				0			
7 0				0	CL		
8 0		S26 SB-1 7'-9'		0			
9 0							
10 0		S26 SB-1 10-11				SANDY CLAY, 10-13 ft, brown, slightly moist to moist	
11 0				0	CL		
12 0							
13 0							
14 0							
15 0							
16 0							
17 0							
18 0							
19 0							
20 0							

OST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER: SWMU No. 26 SB-2

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 26
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN 02/05/98
DATE COMPLETED 02/05/98
HOLE DIAMETER 2 in
TOTAL DEPTH 9 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING Not Encountered

SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0 0							
1 0			Not Recorded			ASPHALT, 0-1 ft FILL, 1-3 ft, gravel, clay, asphalt	
2 0							
3 0		S26 SB-2 3'-4'			CL	CLAY, 3-4 ft, dark brown becoming lighter grey-brown, firm, dry	
4 0					CL	CLAY, 4-5 ft, grey, yellow brown, mottled, soft, slightly moist	
5 0						NO RECOVERY, 5-6 5 ft	
6 0							
7 0		S26 SB-2 7'-8'	65%			CLAY, 6 5-9 ft, grey-brown, slightly moist, slightly silty, soft	
8 0					CL		
9 0							
10 0							
11 0							
12 0							
13 0							
14 0							
15 0							
16 0							
17 0							
18 0							
19 0							
20 0							

QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER: SWMU No. 26 SB-3

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 26
DRILLING COMPANY Petro-Probe
DRILLING METHOD #1 GeoProbe
DRILLING METHOD #2 None
SAMPLING METHOD #1 Macro-core w/ 4 ft liner
SAMPLING METHOD #2 None
GEOLOGIST Scott George

DATE BEGUN 02/03/98
DATE COMPLETED 02/03/98
HOLE DIAMETER 2 in
TOTAL DEPTH 13 ft
GROUND SURFACE ELEVATION: NA
NORTH COORDINATE NA
EAST COORDINATE: NA
WATER LEVEL DURING DRILLING: 9 ft
SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0 0						ASPHALT, 0-1 ft	
1 0			Not Recorded			CLAY FILL, 1-2 ft, dark brown soil, occ gravel	
2 0		S26 SB-3 2'-3'			CL	CLAY, 2-3 ft, dark brown, firm to hard, dry	
3 0						CLAY, 3-5 ft, grey-brown, soft, slightly moist	
4 0					CL		
5 0			50%			NO RECOVERY, 5-7 ft	
6 0							
7 0						CLAY, 7-9 ft, grey-brown, moist, soft, occ yellow-brown mottles	
8 0					CL		
9 0		S26 SB-3 9-11'	Not Recorded			SANDY CLAY, 9-11 ft, grey-brown, sand, wet, occ yellow-brown mottles	
10 0					CL		
11 0						CLAY, 11-13 ft, soft, moist to wet, slightly silty, yellow-brown mottles	
12 0					CL		
13 0							
14 0							
15 0							
16 0							
17 0							
18 0							
19 0							
20 0							

QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER: SWMU No. 31 SB-1

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 31
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN 02/05/98
DATE COMPLETED 02/05/98
HOLE DIAMETER 2 in
TOTAL DEPTH 8.5 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING Not Encountered

SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0 0						ASPHALT, 0-1 ft	
1 0			0%			NO RECOVERY, 1-4 5 ft, concrete in sampler	
2 0							
3 0							
4 0							
5 0						FILL, 4 5-6 2 ft, gravel	
6 0		S31 SB-1 6 2-7	60%		CL	SILTY CLAY, 6 2-7, grey, grey-brown, slightly moist, occ mottles	
7 0							
8 0		S31 SB-1 8-8 5			CL	SILTY CLAY, 7-8 5 ft, lighter grey-brown, moist to very moist, soft, heavy mottling	
9 0							
10 0							
11 0							
12 0							
13 0							
14 0							
15 0							
16 0							
17 0							
18 0							
19 0							
20 0							

QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER SWMU No. 31 SB-2

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 31
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN 02/05/98
DATE COMPLETED 02/05/98
HOLE DIAMETER 2 in
TOTAL DEPTH 8.5 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING Not Encountered

SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0.0						ASPHALT, 0-0.5 ft	
1.0			0%			NO RECOVERY, 0.5-4.5 ft, concrete in sampler	
2.0							
3.0							
4.0							
5.0		S31SB-2 5.2-6'				SILTY CLAY, 4.5-8.5 ft, grey, grey-brown, slightly moist to moist, occ. mottles increasing to heavy w/ depth	
6.0			85%		CL		
7.0							
8.0		S31SB-2 7.5-8.5'					
9.0							
10.0							
11.0							
12.0							
13.0							
14.0							
15.0							
16.0							
17.0							
18.0							
19.0							
20.0							

QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER
		SWMU No. 31 SB-3

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 31
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN 02/05/98
DATE COMPLETED 02/05/98
HOLE DIAMETER 2 in
TOTAL DEPTH 7.5 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING Not Encountered

SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0.0						ASPHALT, 0-1 ft	
1.0						SILTY CLAY, 1-4.5 ft, grey, grey-brown, slightly moist grading to damp to moist, mottled	
2.0		S31 SB-3 1-5.1 2.5'	85%	0			
3.0					CL		
4.0				0			
5.0						NO RECOVERY, 4.5-6.5 ft	
6.0							
7.0		S31 SB-3 6.5-8.5'	50%			SILTY CLAY, 6.5-8.5 ft, brown-green, moist to wet, soft, heavily mottled	
8.0					CL		
9.0							
10.0							
11.0							
12.0							
13.0							
14.0							
15.0							
16.0							
17.0							
18.0							
19.0							
20.0							

QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER: SWMU No. 10 SB-1

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION: SWMU No. 10
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN: 02/03/98
DATE COMPLETED: 02/03/98
HOLE DIAMETER: 2 in
TOTAL DEPTH: 7 ft
GROUND SURFACE ELEVATION: NA
NORTH COORDINATE: NA
EAST COORDINATE: NA
WATER LEVEL DURING DRILLING Not Encountered

SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0 0							
1 0				0		FILL, 0-2 ft, Gravel underlain by cinders and fill	
2 0				0			
3 0				0		CLAY FILL, 2-5 5 ft, grey, brown, moist to slightly damp, occasional gravel	
4 0		S10 SB-1 4'-5'	Not Recorded	0			
5 0				0			
6 0		S10 SB-1 6'-7'		0		5 5-7 ft, grey to yellow brown, moist, soft	
7 0				0			
8 0							
9 0							
10 0							
11 0							
12 0							
13 0							
14 0							
15 0							
16 0							
17 0							
18 0							
19 0							
20 0							

OST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER
		SWMU No. 10 SB-2

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 10
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN 02/03/98
DATE COMPLETED 02/03/98
HOLE DIAMETER 2 in
TOTAL DEPTH 6 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING Not Encountered

SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0 0						ASPHALT, 0-1 ft	
1 0			Not Recorded	0 0		FILL, 1-3 ft, asphalt, gravel, clay, dark-grey to green-black	
2 0				0 0			
3 0		S10 SB-2 3'-5'		0 0		CLAY FILL, 3-6 ft, mottled, grey, brown, black, slightly damp, soft, refusal at 6 ft	
4 0				0 0			
5 0		S10 SB-2 6'7"		0 0			
6 0							
7 0							
8 0							
9 0							
10 0							
11 0							
12 0							
13 0							
14 0							
15 0							
16 0							
17 0							
18 0							
19 0							
20 0							

QST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER: SWMU No. 10 SB-3

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 10
DRILLING COMPANY Petro-Probe
DRILLING METHOD #1 GeoProbe
DRILLING METHOD #2 None
SAMPLING METHOD #1 Macro-core w/ 4 ft liner
SAMPLING METHOD #2 None
GEOLOGIST Scott George

DATE BEGUN 02/03/98
DATE COMPLETED 02/03/98
HOLE DIAMETER 2 in
TOTAL DEPTH 5 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING Not Encountered

SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0.0						ASPHALT, 0-1ft	
1.0			0%			NO RECOVERY, 1-4.5 ft	
2.0							
3.0							
4.0							
5.0						FILL, 4.5-5 ft, asphalt fill, poor recovery, no sample collected	
6.0							
7.0							
8.0							
9.0							
10.0							
11.0							
12.0							
13.0							
14.0							
15.0							
16.0							
17.0							
18.0							
19.0							
20.0							

OST Inc.	FIELD BOREHOLE LOG	BOREHOLE NUMBER SWMU No. 10 SB-4

PROJECT NUMBER 5197-042
PROJECT NAME McDONNELL DOUGLAS
SITE LOCATION ST. LOUIS, MISSOURI
BORING LOCATION SWMU No. 10
DRILLING COMPANY Petro-Probe
DRILLING METHOD *1 GeoProbe
DRILLING METHOD *2 None
SAMPLING METHOD *1 Macro-core w/ 4 ft liner
SAMPLING METHOD *2 None
GEOLOGIST Scott George

DATE BEGUN 02/03/98
DATE COMPLETED 02/03/98
HOLE DIAMETER 2 in
TOTAL DEPTH 9 ft
GROUND SURFACE ELEVATION NA
NORTH COORDINATE NA
EAST COORDINATE NA
WATER LEVEL DURING DRILLING Not Encountered

SHEET 1 OF 1

DEPTH	SAMPLE INTERVAL	SAMPLE NUMBER	RECOVERY	PID (ppm)	USCS SYMBOL	COMMENTS	LITHOLOGY
0 0						ASPHALT, 0-1 ft	
1 0			50%	0 0		NO RECOVERY, 1-3 ft	
2 0							
3 0		S10 SB-4 3'-5'		0 0		FILL, 3-5 ft, cinder fill, black clay, slightly plastic, slightly damp, dark green	
4 0							
5 0			10%	0 0		NO RECOVERY, 5-8 5 ft	
6 0							
7 0							
8 0						FILL, 8 5-9 ft, poor recovery, no sample collected	
9 0							
10 0							
11 0							
12 0							
13 0							
14 0							
15 0							
16 0							
17 0							
18 0							
19 0							
20 0							

Appendix B

Analytical Laboratory Results and Data Validation Reports (Prepared by Katalyst)

KATALYST

ANALYTICAL TECHNOLOGIES, INC.

March 17, 1998

Mr. Scott George
QST Environmental
11665 Lilburn Park Road
St. Louis, MO 63146

Dear Mr. George,

Katalyst Analytical Technologies, Inc., appreciates the opportunity to provide the attached report of analyses for Katalyst sample delivery group #26653, received 02/03/98 by our laboratory. This deliverable includes case narrative, tabulated results, QC summeries, dates report and chain of custody documentation.

Should you have any questions regarding this data, please contact me at (309) 589-8004.

Sincerely,

KATALYST ANALYTICAL TECHNOLOGIES, INC.

Dan Moore
Project Manager

Attachments

8901 N. Industrial Road • Suite 100 • Peoria, IL 61615-1581 • Phone: (309) 589-8000 • Fax: (309) 692-5232 • www.katalyst1.com

CASE NARRATIVE

KATALYST

ANALYTICAL TECHNOLOGIES, INC.

CASE NARRATIVE/VALIDATION REPORT

QST Environmental / Boeing
Fg# 26653

Katalyst Analytical Technologies, Inc., received 11 soil samples on 2/3/98 on ice and in good condition. There were two samples (S21B5 7'-8' and S21B5 2'-4')which were labeled inconsistent with the chain of custody record. These discrepancies were easily resolved utilizing the sampling date and time. Per the client's instructions, the sample ids on the chain of custody were utilized for these samples.. The sample set was designated as one sample delivery batch, 26653 for RCRA Metals, Cyanide, Volatile Organics and Iowa Methods OA-1 and OA-2 analyses.

LAB NO.	CLIENT ID	DATE COLLECTED	DATE RECEIVED
26653*1	S21B1 1'-2'	2/2/98	2/3/98
26653*2	S21B1 27'-28'	2/2/98	2/3/98
26653*3	S21B2 1'-2'	2/2/98	2/3/98
26653*4	S21B2 13'-15'	2/2/98	2/3/98
26653*5	S21B3 4'-5'	2/2/98	2/3/98
26653*6	S21B3 17'-21'	2/2/98	2/3/98
26653*7	S21B4 2'-3'	2/2/98	2/3/98
26653*8	S21B4 7'-9'	2/2/98	2/3/98
26653*9	S21B5 2'-4'	2/2/98	2/3/98
26653*10	S21B5 7'-8'	2/2/98	2/3/98
26653*11	S21B5 10'-12'	2/2/98	2/3/98

RCRA Metals (SW 846 6010/7470) Project Summary:

The samples were digested and analyzed within method holding-times.

RCRA Metals (SW 846 6010/7470) QC Summary:

All holding time criteria were met.

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RCRA Metals (SW 846 6010/7470) QC Summary Cont.:

All initial and continuing calibration standards met the criteria of the methods.

The laboratory method blanks did not contain any target analytes of interest.

The Laboratory Control Sample (LCS) demonstrated recoveries within method specified limits.

The replicates were within method specified limits with the exception of the following: Cadmium, Lead, and Mercury. Theses replicates were not within method specified limits due to the samples either containing high or trace concentrations of the element. Post digestion spikes were performed on these elements.

Several analyses required serial dilutions to be performed. In some instances, the serial dilution did not meet method acceptance criteria. Post digestion spikes and the method of standard additions were utilized to verify matrix interference and quantify sample and QC results, where applicable.

The associated matrix spike and duplicates (MS/MSD) were performed on samples S21B1 127'-28' and S21B5 10'-12', from this project. All MS/MSD recoveries were within method specified limits except for the Chromium, Lead, Arsenic and Mercury analyses. The Chromium MS recovery was slightly below (0.1 -1.5%) method specified limits. A post digestion spike was performed and was within method specified limits, verifying matrix interference. The Lead and Arsenic MS/MSD recoveries are not within method specified limits due to the concentrations of these elements in the associate sample overwhelming the amount spiked. The Mercury MSD recovery was greater than method specified limits. A post digestion spike was performed which was within method specified limits

Cyanide Project Summary:

These samples were analyzed within method holding-time.

Cyanide Chemistry QC Summary:

All holding time criteria were met.

All laboratory method blanks did not contain any target analytes of interest.

All initial and continuing calibration standards met the criteria of the method

The spike recoveries in the standard matrix spikes were within method specified limits.

The associated matrix spike and duplicate was performed on sample S21B5 10'-12', from this project. The matrix spike and duplicate recoveries were within method specified limits.

Volatile Organics (8240) Project Summary:

One sample (S21B5 10'-12') from this field group was analyzed for Volatile Organic Compounds. This sample was analyzed on 02/16/97, within the method specified hold-time.

Volatile Organics (8240) QC Summary:

All holding time criteria were met.

The laboratory method blank did not contain any analytes of interest above the reporting limit.

GC/MS tuning ion abundance criteria for Bromofluorbenzene (BFB) was within the established control limits.

All initial and continuing calibration standards met the criteria of the method.

The surrogate spike recoveries were within method specified limits.

All spike recoveries in the laboratory control sample were within method specified limits.

The associated matrix spike and duplicate were performed on sample S21B5 10'-12'. The matrix spike and duplicate recoveries were within method specified limits. There are additional MS/MSD included in the QC Batch summaries which are associated with this project which do not apply to this field group. Therefore, they are not addressed in this narrative.

A review of the data indicated that the retention times and mass spectra of the sample analytes are in agreeement with the calibration standards.

BTEX/GRO (Iowa OA_1) Project Summary:

One sample (S21B5 10'-12') from this field group was analyzed for BTEX /GRO compounds. This sample was analyzed on 02/16/97, within the method specified hold-time.

BTEX/GRO (Iowa OA_1) QC Summary:

All holding time criteria were met.

The laboratory method blank did not contain any analytes of interest above the reporting limit.

All initial and continuing calibration standards met the criteria of the method.

The surrogate spike recoveries were not within method specified limits. The analysis was repeated and a similar surrogate recovery was obtained. Matrix interference is suspected.

All spike recoveries in the laboratory control sample were within method specified limits.

The associated matrix spike and duplicate was performed on sample S21B5 10'-12'. The matrix spike and duplicate recoveries were not within method specified limits. The analyses were repeated with similar recoveries. Matrix interference is suspected.

DRO (Iowa OA_2) Project Summary:

One sample (S21B5 10'-12') from this field group was analyzed for BTEX /GRO compounds. This sample was analyzed on 02/16/97, within the method specified hold-time.

DRO (Iowa OA_2) QC Summary:

All holding time criteria were met.

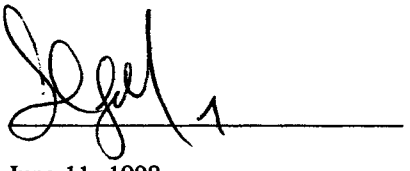
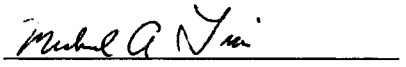
The laboratory method blank did not contain any analytes of interest above the reporting limit.

All initial and continuing calibration standards met the criteria of the method.

All spike recoveries in the laboratory control sample were within method specified limits.

The associated matrix spike and duplicate was performed on sample S21B5 10'-12'. The matrix spike and duplicate recoveries were not within method specified limits. The amount of analyte spiked in the MS/MSD was insignificant compare to the associated sample concentration. Therefore, spike recoveries are not applicable.

Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Signature:		Name:	Daniel J. Moore
Date	June 11, 1998	Title:	Project Manager
Signature:		Name:	Michael Travis
Date	June 11, 1998	Title:	QA Manager

ANALYTICAL RESULTS

PROJECT NUMBER 110S01 5100 PROJECT NAME QST ST.LOUIS/BOEING
FIELD GROUP LAB COORDINATOR Daniel Moore

CLIENT SAMPLE ID'S:			S21B1 1'-2'	S21B1 27'-28'	S21B2 1'-2'	S21B2 13'-15'
FIELD GROUP:			26653	26653	26653	26653
SEQUENCE #:			1	2	3	4
DATE COLLECTED:			02/02/98	02/02/98	02/02/98	02/02/98
TIME COLLECTED:			09:05	10:15	11:45	12:10
PARAMETERS	UNITS	METHOD				
Barium	MG/KG-DRY	SW6010	130	73	180	120
Cadmium	MG/KG-DRY	SW6010	0.72	<0.64	<0.63	<0.66
Chromium	MG/KG-DRY	SW6010	18	16	14	15
Silver	MG/KG-DRY	SW6010	<2.4	<2.6	<2.5	<2.6
Arsenic	MG/KG-DRY	SW7060	13	<6.4	<6.2	<6.6
Lead	MG/KG-DRY	SW7421	10	7.2	15	10
Mercury	MG/KG-DRY	SW7471	0.040	0.030	0.030	0.030
Selenium	MG/KG-DRY	SW7740	1.2	0.99	1.5	1.0
Moisture	%	E160.3	18.8	22.6	20.9	24.9
Cyanide	MG/KG	SW9010	<0.50	<0.50	<0.50	<0.50

PROJECT NUMBER 110S01 5100 PROJECT NAME QST ST.LOUIS/BOEING
FIELD GROUP LAB COORDINATOR Daniel Moore

CLIENT SAMPLE ID'S:			S21B3 4'-5'	S21B3 17'-21'	S21B4 2'-3'
FIELD GROUP:			26653	26653	26653
SEQUENCE #:			5	6	7
DATE COLLECTED:			02/02/98	02/02/98	02/02/98
TIME COLLECTED:			12:50	13:30	13:55
PARAMETERS	UNITS	METHOD			
Barium	MG/KG-DRY	SW6010	160	160	110
Cadmium	MG/KG-DRY	SW6010	<0.63	<0.64	<0.62
Chromium	MG/KG-DRY	SW6010	15	16	18
Silver	MG/KG-DRY	SW6010	<2.5	<2.6	<2.5
Arsenic	MG/KG-DRY	SW7060	8.4	10	7.1
Lead	MG/KG-DRY	SW7421	10	16	12
Mercury	MG/KG-DRY	SW7471	0.030	0.030	0.060
Selenium	MG/KG-DRY	SW7740	1.4	1.7	1.0
Moisture	%	E160.3	21.6	23.7	20.1
Cyanide	MG/KG	SW9010	<0.50	<0.50	<0.50

CLIENT SAMPLE ID'S:			S21B4 7'-9'	S21B5 2'-4'
FIELD GROUP:			26653	26653
SEQUENCE #:			8	9
DATE COLLECTED:			02/02/98	02/02/98
TIME COLLECTED:			14:05	14:25
PARAMETERS	UNITS	METHOD		
Barium	MG/KG-DRY	SW6010	62	200
Cadmium	MG/KG-DRY	SW6010	<0.63	<0.62
Chromium	MG/KG-DRY	SW6010	12	23
Silver	MG/KG-DRY	SW6010	<2.5	<2.5
Arsenic	MG/KG-DRY	SW7060	<6.3	13
Lead	MG/KG-DRY	SW7421	7.0	14
Mercury	MG/KG-DRY	SW7471	0.090	0.22
Selenium	MG/KG-DRY	SW7740	1.6	1.2
Moisture	%	E160.3	21.5	20.9
Cyanide	MG/KG	SW9010	<0.50	<0.50

CLIENT SAMPLE ID'S:			S21B5 10'-12'	S21B5 10'-12'DL
FIELD GROUP:			26653	26653
SEQUENCE #:			11	11 DL
DATE COLLECTED:			02/02/98	02/02/98
TIME COLLECTED:			14:50	14:50
PARAMETERS	UNITS	METHOD		
Barium	MG/KG-DRY	SW6010	140	NA
Cadmium	MG/KG-DRY	SW6010	0.64	NA
Chromium	MG/KG-DRY	SW6010	15	NA
Silver	MG/KG-DRY	SW6010	<2.5	NA
Arsenic	MG/KG-DRY	SW7060	11	NA
Lead	MG/KG-DRY	SW7421	12	NA
Mercury	MG/KG-DRY	SW7471	0.070	NA
Selenium	MG/KG-DRY	SW7740	0.91	NA
Moisture	%	E160.3	22.5	NA
Acetone	UG/KG-DRY	SW8240	19	NA
Benzene	UG/KG-DRY	SW8240	<6.5	NA
Bromodichloromethane	UG/KG-DRY	SW8240	<6.5	NA
Bromoform	UG/KG-DRY	SW8240	<6.5	NA
Bromomethane	UG/KG-DRY	SW8240	<13	NA
2-Butanone	UG/KG-DRY	SW8240	<13	NA
Carbon Disulfide	UG/KG-DRY	SW8240	<6.5	NA
Carbon Tetrachloride	UG/KG-DRY	SW8240	<6.5	NA
Chlorobenzene	UG/KG-DRY	SW8240	<6.5	NA
Chloroethane	UG/KG-DRY	SW8240	<13	NA
Chloroform	UG/KG-DRY	SW8240	<6.5	NA
Chloromethane	UG/KG-DRY	SW8240	<13	NA
Dibromochloromethane	UG/KG-DRY	SW8240	<6.5	NA
1,1-Dichloroethane	UG/KG-DRY	SW8240	<6.5	NA
1,2-Dichloroethane	UG/KG-DRY	SW8240	<6.5	NA
1,1-Dichloroethene	UG/KG-DRY	SW8240	<6.5	NA
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.5	NA
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.5	NA
1,2-Dichloropropane	UG/KG-DRY	SW8240	<6.5	NA
cis-1,3-Dichloropropene	UG/KG-DRY	SW8240	<6.5	NA

DL - Dilution

CLIENT SAMPLE ID'S:			S21B5 10'-12'	S21B5 10'-12'DL
FIELD GROUP:			26653	26653
SEQUENCE #:			11	11 DL
DATE COLLECTED:			02/02/98	02/02/98
TIME COLLECTED:			14:50	14:50
PARAMETERS	UNITS	METHOD		
trans-1,3-Dichloropropene	UG/KG-DRY	SW8240	<6.5	NA
Ethylbenzene	UG/KG-DRY	SW8240	<6.5	NA
2-Hexanone	UG/KG-DRY	SW8240	<13	NA
4-Methyl-2-pentanone	UG/KG-DRY	SW8240	<13	NA
Methylene Chloride	UG/KG-DRY	SW8240	<6.5	NA
Styrene	UG/KG-DRY	SW8240	<6.5	NA
1,1,2,2-Tetrachloroethane	UG/KG-DRY	SW8240	<6.5	NA
Tetrachloroethene	UG/KG-DRY	SW8240	<6.5	NA
Toluene	UG/KG-DRY	SW8240	<6.5	NA
1,1,1-Trichloroethane	UG/KG-DRY	SW8240	<6.5	NA
1,1,2-Trichloroethane	UG/KG-DRY	SW8240	<6.5	NA
Trichloroethene	UG/KG-DRY	SW8240	<6.5	NA
Vinyl Acetate	UG/KG-DRY	SW8240	<6.5	NA
Vinyl Chloride	UG/KG-DRY	SW8240	<13	NA
Xylenes (total)	UG/KG-DRY	SW8240	<6.5	NA
Gasoline Range Organics	UG/KG-WET	OA-1/5030	93000	NA
Benzene	UG/KG-WET	OA-1	<11	NA
Ethylbenzene	UG/KG-WET	OA-1	<8.8	NA
Toluene	UG/KG-WET	OA-1	<6.3	NA
m-and/or p-Xylene	UG/KG-WET	OA-1	<18	NA
o-Xylene	UG/KG-WET	OA-1	<8.8	NA
Xylenes, Total	UG/KG-WET	OA-1	<27	NA
Total Extractable Hydrocarbons	MG/KG-WET	OA-2	220E	200
Cyanide	MG/KG-WET	SW9010	<0.50	NA

DL - Dilution
E - Exceeded Calibration Range

CLIENT SAMPLE ID'S:	S21B6 2'-4'
FIELD GROUP:	26653
SEQUENCE #:	12
DATE COLLECTED:	02/02/98
TIME COLLECTED:	15:20

PARAMETERS	UNITS	METHOD	
Barium	MG/KG-DRY	SW6010	110
Cadmium	MG/KG-DRY	SW6010	<0.59
Chromium	MG/KG-DRY	SW6010	25
Silver	MG/KG-DRY	SW6010	<2.4
Arsenic	MG/KG-DRY	SW7060	6.0
Lead	MG/KG-DRY	SW7421	96
Mercury	MG/KG-DRY	SW7471	0.060
Selenium	MG/KG-DRY	SW7740	1.7
Moisture	%	E160.3	17.2
Cyanide	MG/KG	SW9010	<0.50

CLIENT SAMPLE ID'S:	S21B6 10'-12'
FIELD GROUP:	26653
SEQUENCE #:	13
DATE COLLECTED:	02/02/98
TIME COLLECTED:	15:40

PARAMETERS	UNITS	METHOD	
Barium	MG/KG-DRY	SW6010	99
Cadmium	MG/KG-DRY	SW6010	<0.65
Chromium	MG/KG-DRY	SW6010	17
Silver	MG/KG-DRY	SW6010	<2.6
Arsenic	MG/KG-DRY	SW7060	12
Lead	MG/KG-DRY	SW7421	8.5
Mercury	MG/KG-DRY	SW7471	0.030
Selenium	MG/KG-DRY	SW7740	1.0
Moisture	%	E160.3	23.6
Cyanide	MG/KG	SW9010	<0.50

SAMPLE	STATION ID	COLLECT. TIME	RECEIPT	CLASSIFICATION	LEACHATE	EXTRACTION	DAYS, ACT/HT ANALYSIS	LCH	EXT	ANL	BATCH
26653*1	S21B1 1'-2'	02/02/98 09:05A	02/03/98	Barium-ICP	NA	NA	02/07/98 12:28P	NA	NA	5/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 12:28P	NA	NA	5/180	P40828
				Chromium-ICP	NA	NA	02/07/98 12:28P	NA	NA	5/180	P40828
				Lead-GFAA	NA	NA	02/10/98 04:18P	NA	NA	8/180	P40859
				Silver-ICP	NA	NA	02/07/98 12:28P	NA	NA	5/180	P40828
				Arsenic-GFAA	NA	NA	02/06/98 03:31P	NA	NA	4/180	P40836
				Selenium-GFAA	NA	NA	02/05/98 07:13P	NA	NA	3/180	P40833
				Mercury	NA	NA	02/09/98 12:23P	NA	NA	7/28	P40873
				Cyanide	NA	NA	02/11/98 04:25P	NA	NA	9/14	P40865
				MoistureMETHOD	NA	NA	02/04/98 01:20P	NA	NA	2/180	P40800
26653*2	S21B1 27'-28'	02/02/98 10:15A	02/03/98	Barium-ICP	NA	NA	02/07/98 12:31P	NA	NA	5/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 12:31P	NA	NA	5/180	P40828
				Chromium-ICP	NA	NA	02/07/98 12:31P	NA	NA	5/180	P40828
				Lead-GFAA	NA	NA	02/10/98 04:30P	NA	NA	8/180	P40859
				Silver-ICP	NA	NA	02/07/98 12:31P	NA	NA	5/180	P40828
				Arsenic-GFAA	NA	NA	02/06/98 12:05A	NA	NA	3/180	P40836
				Selenium-GFAA	NA	NA	02/05/98 07:25P	NA	NA	3/180	P40833
				Mercury	NA	NA	02/09/98 11:40A	NA	NA	7/28	P40873
				Cyanide	NA	NA	02/11/98 04:26P	NA	NA	9/14	P40865
				MoistureMETHOD	NA	NA	02/04/98 01:20P	NA	NA	2/180	P40800
26653*3	S21B2 1'-2'	02/02/98 11:45A	02/03/98	Barium-ICP	NA	NA	02/07/98 12:41P	NA	NA	5/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 12:41P	NA	NA	5/180	P40828
				Chromium-ICP	NA	NA	02/07/98 12:41P	NA	NA	5/180	P40828
				Lead-GFAA	NA	NA	02/10/98 04:41P	NA	NA	8/180	P40859
				Silver-ICP	NA	NA	02/07/98 12:41P	NA	NA	5/180	P40828
				Arsenic-GFAA	NA	NA	02/06/98 03:43P	NA	NA	4/180	P40836
				Selenium-GFAA	NA	NA	02/05/98 07:50P	NA	NA	3/180	P40833
				Mercury	NA	NA	02/09/98 11:42A	NA	NA	6/28	P40873
				Cyanide	NA	NA	02/11/98 04:27P	NA	NA	9/14	P40865
				MoistureMETHOD	NA	NA	02/04/98 01:20P	NA	NA	2/180	P40800
26653*4	S21B2 13'-15'	02/02/98 12:10P	02/03/98	Barium-ICP	NA	NA	02/07/98 12:45P	NA	NA	5/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 12:45P	NA	NA	5/180	P40828
				Chromium-ICP	NA	NA	02/07/98 12:45P	NA	NA	5/180	P40828
				Lead-GFAA	NA	NA	02/10/98 05:05P	NA	NA	8/180	P40859
				Silver-ICP	NA	NA	02/07/98 12:45P	NA	NA	5/180	P40828
				Arsenic-GFAA	NA	NA	02/06/98 03:55P	NA	NA	4/180	P40836
				Selenium-GFAA	NA	NA	02/05/98 08:02P	NA	NA	3/180	P40833
				Mercury	NA	NA	02/09/98 11:45A	NA	NA	6/28	P40873
				Cyanide	NA	NA	02/11/98 04:28P	NA	NA	9/14	P40865
				MoistureMETHOD	NA	NA	02/04/98 01:20P	NA	NA	2/180	P40800
26653*5	S21B3 4'-5'	02/02/98 12:50P	02/03/98	Barium-ICP	NA	NA	02/07/98 12:48P	NA	NA	4/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 12:48P	NA	NA	4/180	P40828
				Chromium-ICP	NA	NA	02/07/98 12:48P	NA	NA	4/180	P40828
				Lead-GFAA	NA	NA	02/10/98 05:16P	NA	NA	8/180	P40859
				Silver-ICP	NA	NA	02/07/98 12:48P	NA	NA	4/180	P40828
				Arsenic-GFAA	NA	NA	02/06/98 04:18P	NA	NA	4/180	P40836
				Selenium-GFAA	NA	NA	02/05/98 08:15P	NA	NA	3/180	P40833
				Mercury	NA	NA	02/09/98 11:47A	NA	NA	6/28	P40873
				Cyanide	NA	NA	02/11/98 04:29P	NA	NA	9/14	P40865
				MoistureMETHOD	NA	NA	02/04/98 01:20P	NA	NA	2/180	P40800
26653*6	S21B3 17'-21'	02/02/98 01:30P	02/03/98	Barium-ICP	NA	NA	02/07/98 12:52P	NA	NA	4/180	P40828

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

Katalyst Analytical Technologies, Inc.
QST ENVIRONMENTAL 26653 DATES REPORT

SAMPLE	STATION ID	COLLECT. TIME	RECEIPT	CLASSIFICATION	LEACHATE	EXTRACTION	DAYS, ACT/HT ANALYSIS	LCH	EXT	ANL	BATCH
				Cadmium-ICP	NA	NA	02/07/98 12:52P	NA	NA	4/180	P40828
				Chromium-ICP	NA	NA	02/07/98 12:52P	NA	NA	4/180	P40828
				Lead-GFAA	NA	NA	02/11/98 04:26P	NA	NA	9/180	P40859
				Silver-ICP	NA	NA	02/07/98 12:52P	NA	NA	4/180	P40828
				Arsenic-GFAA	NA	NA	02/06/98 04:30P	NA	NA	4/180	P40836
				Selenium-GFAA	NA	NA	02/05/98 08:27P	NA	NA	3/180	P40833
				Mercury	NA	NA	02/09/98 11:49A	NA	NA	6/28	P40873
				Cyanide	NA	NA	02/11/98 04:30P	NA	NA	9/14	P40865
				MoistureMETHOD	NA	NA	02/04/98 01:20P	NA	NA	1/180	P40800
26653*7	S21B4 2'-3'	02/02/98 01:55P	02/03/98	Barium-ICP	NA	NA	02/07/98 12:55P	NA	NA	4/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 12:55P	NA	NA	4/180	P40828
				Chromium-ICP	NA	NA	02/07/98 12:55P	NA	NA	4/180	P40828
				Lead-GFAA	NA	NA	02/10/98 05:38P	NA	NA	8/180	P40859
				Silver-ICP	NA	NA	02/07/98 12:55P	NA	NA	4/180	P40828
				Arsenic-GFAA	NA	NA	02/06/98 04:41P	NA	NA	4/180	P40836
				Selenium-GFAA	NA	NA	02/05/98 08:39P	NA	NA	3/180	P40833
				Mercury	NA	NA	02/09/98 11:52A	NA	NA	6/28	P40873
				Cyanide	NA	NA	02/11/98 04:31P	NA	NA	9/14	P40865
				MoistureMETHOD	NA	NA	02/04/98 01:20P	NA	NA	1/180	P40800
26653*8	S21B4 7'-9'	02/02/98 02:05P	02/03/98	Barium-ICP	NA	NA	02/07/98 12:59P	NA	NA	4/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 12:59P	NA	NA	4/180	P40828
				Chromium-ICP	NA	NA	02/07/98 12:59P	NA	NA	4/180	P40828
				Lead-GFAA	NA	NA	02/10/98 06:01P	NA	NA	8/180	P40859
				Silver-ICP	NA	NA	02/07/98 12:59P	NA	NA	4/180	P40828
				Arsenic-GFAA	NA	NA	02/06/98 04:53P	NA	NA	4/180	P40836
				Selenium-GFAA	NA	NA	02/05/98 09:03P	NA	NA	3/180	P40833
				Mercury	NA	NA	02/09/98 11:59A	NA	NA	6/28	P40873
				Cyanide	NA	NA	02/11/98 05:00P	NA	NA	9/14	P40865
				MoistureMETHOD	NA	NA	02/04/98 01:20P	NA	NA	1/180	P40800
26653*9	S21B5 2'-4'	02/02/98 02:25P	02/03/98	Barium-ICP	NA	NA	02/07/98 01:02P	NA	NA	4/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 01:02P	NA	NA	4/180	P40828
				Chromium-ICP	NA	NA	02/07/98 01:02P	NA	NA	4/180	P40828
				Lead-GFAA	NA	NA	02/10/98 06:12P	NA	NA	8/180	P40859
				Silver-ICP	NA	NA	02/07/98 01:02P	NA	NA	4/180	P40828
				Arsenic-GFAA	NA	NA	02/06/98 05:04P	NA	NA	4/180	P40836
				Selenium-GFAA	NA	NA	02/05/98 09:15P	NA	NA	3/180	P40833
				Mercury	NA	NA	02/09/98 12:01P	NA	NA	6/28	P40873
				Cyanide	NA	NA	02/11/98 05:01P	NA	NA	9/14	P40865
				MoistureMETHOD	NA	NA	02/04/98 01:20P	NA	NA	1/180	P40800
26653*10	S21B5 7'-8'	02/02/98 02:40P	02/03/98	HOLD SAMPLE	NA	NA	01:20P	NA	NA	/NA	
26653*11	S21B5 10'-12'	02/02/98 02:50P	02/03/98	Barium-ICP	NA	NA	02/07/98 01:05P	NA	NA	4/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 01:05P	NA	NA	4/180	P40828
				Chromium-ICP	NA	NA	02/07/98 01:05P	NA	NA	4/180	P40828
				Lead-GFAA	NA	NA	02/10/98 06:24P	NA	NA	8/180	P40859
				Silver-ICP	NA	NA	02/07/98 01:05P	NA	NA	4/180	P40828
				Arsenic-GFAA	NA	NA	02/06/98 05:26P	NA	NA	4/180	P40836
				Selenium-GFAA	NA	NA	02/05/98 09:27P	NA	NA	3/180	P40833
				Mercury	NA	NA	02/11/98 03:51P	NA	NA	9/28	P40873
				Cyanide	NA	NA	02/11/98 05:02P	NA	NA	9/14	P40865
				MoistureMETHOD	NA	NA	02/04/98 01:20P	NA	NA	1/180	P40800
				GC VOLATILES	NA	NA	02/09/98 11:33A	NA	NA	6/14	P40839

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

QST ENVIRONMENTAL 26653 DATES REPORT

SAMPLE	STATION ID	COLLECT. TIME	RECEIPT	CLASSIFICATION	LEACHATE	EXTRACTION	DAYS, ACT/HT ANALYSIS	LCH	EXT	ANL	BATCH
				GROOA-1/5030	NA	NA	02/07/98 06:02P	NA	NA	5/14	P40823
				VOLATILES (GC)	NA	NA	02/09/98 11:33A	NA	NA	6/14	P40839
				TOTAL EXTRACTABLE HYDROCA	NA	02/06/98 04:45A	02/06/98 11:25P	NA	3/14	0/40	P40820
				Volatiles	NA	NA	02/16/98 05:40P	NA	NA	14/14	P41047
26653*12	S21B6 2'-4'	02/02/98 03:20P	02/03/98	Barium-ICP	NA	NA	02/06/98 01:33P	NA	NA	3/180	P40828
				Cadmium-ICP	NA	NA	02/06/98 01:33P	NA	NA	3/180	P40828
				Chromium-ICP	NA	NA	02/06/98 01:33P	NA	NA	3/180	P40828
				Lead-GFAA	NA	NA	02/11/98 04:37P	NA	NA	9/180	P40859
				Silver-ICP	NA	NA	02/06/98 01:33P	NA	NA	3/180	P40828
				Arsenic-GFAA	NA	NA	02/06/98 05:55P	NA	NA	4/180	P40836
				Selenium-GFAA	NA	NA	02/05/98 10:11P	NA	NA	3/180	P40833
				Mercury	NA	NA	02/09/98 12:12P	NA	NA	6/28	P40873
				Cyanide	NA	NA	02/11/98 05:20P	NA	NA	9/14	P40865
				MoistureMETHOD	NA	NA	02/04/98 01:20P	NA	NA	1/180	P40800
26653*13	S21B6 10'-12'	02/02/98 03:40P	02/03/98	Barium-ICP	NA	NA	02/07/98 01:36P	NA	NA	4/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 01:36P	NA	NA	4/180	P40828
				Chromium-ICP	NA	NA	02/07/98 01:36P	NA	NA	4/180	P40828
				Lead-GFAA	NA	NA	02/10/98 07:16P	NA	NA	8/180	P40859
				Silver-ICP	NA	NA	02/07/98 01:36P	NA	NA	4/180	P40828
				Arsenic-GFAA	NA	NA	02/06/98 06:07P	NA	NA	4/180	P40836
				Selenium-GFAA	NA	NA	02/05/98 10:23P	NA	NA	3/180	P40833
				Mercury	NA	NA	02/09/98 12:15P	NA	NA	6/28	P40873
				Cyanide	NA	NA	02/11/98 05:21P	NA	NA	9/14	P40865
				MoistureMETHOD	NA	NA	02/04/98 01:20P	NA	NA	1/180	P40800

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

SAMPLE.....	SITE ID.....	ANALYTE.....	DIL....	BATCH
26653*1	S21B1 1'-2'	Lead	5	P40859
26653*2	S21B1 27'-28'	Lead	2	P40859
26653*3	S21B2 1'-2'	Lead	10	P40859
26653*4	S21B2 13'-15'	Lead	5	P40859
26653*5	S21B3 4'-5'	Lead	2	P40859
26653*6	S21B3 17'-21'	Lead	20	P40859
26653*7	S21B4 2'-3'	Lead	5	P40859
26653*8	S21B4 7'-9'	Lead	5	P40859
26653*9	S21B5 2'-4'	Lead	5	P40859
26653*11	S21B5 10'-12'	Gasoline Range Organ	1250	P40823
		Benzene	125	P40839
		Toluene	125	
		Xylenes, Total	125	
		Ethylbenzene	125	
		m-and/or p-Xylene	125	
		o-Xylene	125	
		Lead	5	P40859
26653*11 DL	S21B5 10'-12'	TOTAL EXTRACTABLE HY	5	P40820
26653*12	S21B6 2'-4'	Lead	50	P40859
26653*13	S21B6 10'-12'	Lead	5	P40859

QUALITY CONTROL SUMMARY REPORTS BY ANALYTICAL BATCH

KATALYST BATCH : P40828
ANALYSIS : SW6010

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : ICP UPLOAD

REPORT DATE/TIME : 03/19/98 15:11
ANALYSIS DATE/TIME : 02/07/98
EXTRACT DATE : 02/04/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26653	CLIENT	110S01 5100	QST ST.LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26653*1	S21B1 1'-2'	02/06/98	12:28PM
DA*26653*2	S21B1 27'-28'	02/06/98	12:31PM
DA*26653*3	S21B2 1'-2'	02/06/98	12:41PM
DA*26653*4	S21B2 13'-15'	02/06/98	12:45PM
DA*26653*5	S21B3 4'-5'	02/06/98	12:48PM
DA*26653*6	S21B3 17'-21'	02/06/98	12:52PM
DA*26653*7	S21B4 2'-3'	02/06/98	12:55PM
DA*26653*8	S21B4 7'-9'	02/06/98	12:59PM
DA*26653*9	S21B5 2'-4'	02/06/98	01:02PM
DA*26653*11	S21B5 10'-12'	02/06/98	01:05PM
DA*26653*12	S21B6 2'-4'	02/06/98	01:33PM
DA*26653*13	S21B6 10'-12'	02/06/98	01:36PM

KATALYST BATCH : P40828

Continuing Calibration Blank Sample Summary

TE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
/07/98	CCB*980207*1	1008*6010/3050	Barium	MG/KG-	0.0008
/07/98	CCB*980207*1	1028*6010/3050	Cadmium	MG/KG-	0.0006
02/07/98	CCB*980207*1	1029*6010/3050	Chromium	MG/KG-	0.0001
02/07/98	CCB*980207*1	1078*6010/3050	Silver	MG/KG-	ND
/07/98	CCB*980207*2	1008*6010/3050	Barium	MG/KG-	0.0008
/07/98	CCB*980207*2	1028*6010/3050	Cadmium	MG/KG-	0.0009
02/07/98	CCB*980207*2	1029*6010/3050	Chromium	MG/KG-	ND
02/07/98	CCB*980207*2	1078*6010/3050	Silver	MG/KG-	ND
/07/98	CCB*980207*3	1008*6010/3050	Barium	MG/KG-	0.0008
/07/98	CCB*980207*3	1028*6010/3050	Cadmium	MG/KG-	0.0007
/07/98	CCB*980207*3	1029*6010/3050	Chromium	MG/KG-	ND
02/07/98	CCB*980207*3	1078*6010/3050	Silver	MG/KG-	ND
02/07/98	CCB*980207*4	1008*6010/3050	Barium	MG/KG-	0.0008
/07/98	CCB*980207*4	1028*6010/3050	Cadmium	MG/KG-	0.002
/07/98	CCB*980207*4	1029*6010/3050	Chromium	MG/KG-	ND
02/07/98	CCB*980207*4	1078*6010/3050	Silver	MG/KG-	ND
02/07/98	CCB*980207*5	1008*6010/3050	Barium	MG/KG-	0.0008
/07/98	CCB*980207*5	1028*6010/3050	Cadmium	MG/KG-	0.002
/07/98	CCB*980207*5	1029*6010/3050	Chromium	MG/KG-	ND
/07/98	CCB*980207*5	1078*6010/3050	Silver	MG/KG-	ND
02/07/98	CCB*980207*6	1008*6010/3050	Barium	MG/KG-	0.005
02/07/98	CCB*980207*6	1028*6010/3050	Cadmium	MG/KG-	0.001
/07/98	CCB*980207*6	1029*6010/3050	Chromium	MG/KG-	ND
/07/98	CCB*980207*6	1078*6010/3050	Silver	MG/KG-	ND

Continuing Calibration Verification Sample Summary

TE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
/07/98	CCV*980207*1	1008*6010/3050	Barium	MG/KG-	4.00	3.83	95.8	90-110
02/07/98	CCV*980207*1	1028*6010/3050	Cadmium	MG/KG-	4.00	3.83	95.8	90-110
02/07/98	CCV*980207*1	1029*6010/3050	Chromium	MG/KG-	4.00	3.82	95.5	90-110
/07/98	CCV*980207*1	1078*6010/3050	Silver	MG/KG-	0.400	0.371	92.8	90-110
/07/98	CCV*980207*2	1008*6010/3050	Barium	MG/KG-	4.00	3.79	94.8	90-110
02/07/98	CCV*980207*2	1028*6010/3050	Cadmium	MG/KG-	4.00	3.84	96.0	90-110
02/07/98	CCV*980207*2	1029*6010/3050	Chromium	MG/KG-	4.00	3.81	95.3	90-110
/07/98	CCV*980207*2	1078*6010/3050	Silver	MG/KG-	0.400	0.368	92.0	90-110
/07/98	CCV*980207*3	1008*6010/3050	Barium	MG/KG-	4.00	3.83	95.8	90-110
02/07/98	CCV*980207*3	1028*6010/3050	Cadmium	MG/KG-	4.00	3.90	97.5	90-110
02/07/98	CCV*980207*3	1029*6010/3050	Chromium	MG/KG-	4.00	3.87	96.8	90-110
02/07/98	CCV*980207*3	1078*6010/3050	Silver	MG/KG-	0.400	0.371	92.8	90-110
/07/98	CCV*980207*4	1008*6010/3050	Barium	MG/KG-	4.00	3.80	95.0	90-110
/07/98	CCV*980207*4	1028*6010/3050	Cadmium	MG/KG-	4.00	3.88	97.0	90-110
02/07/98	CCV*980207*4	1029*6010/3050	Chromium	MG/KG-	4.00	3.84	96.0	90-110
02/07/98	CCV*980207*4	1078*6010/3050	Silver	MG/KG-	0.400	0.368	92.0	90-110
/07/98	CCV*980207*5	1008*6010/3050	Barium	MG/KG-	4.00	3.76	94.0	90-110
/07/98	CCV*980207*5	1028*6010/3050	Cadmium	MG/KG-	4.00	3.85	96.3	90-110
/07/98	CCV*980207*5	1029*6010/3050	Chromium	MG/KG-	4.00	3.81	95.3	90-110
02/07/98	CCV*980207*5	1078*6010/3050	Silver	MG/KG-	0.400	0.368	92.0	90-110
/07/98	CCV*980207*6	1008*6010/3050	Barium	MG/KG-	4.00	3.79	94.8	90-110
/07/98	CCV*980207*6	1028*6010/3050	Cadmium	MG/KG-	4.00	3.88	97.0	90-110
/07/98	CCV*980207*6	1029*6010/3050	Chromium	MG/KG-	4.00	3.82	95.5	90-110
02/07/98	CCV*980207*6	1078*6010/3050	Silver	MG/KG-	0.400	0.368	92.0	90-110
02/07/98	CCV*980207*7	1008*6010/3050	Barium	MG/KG-	4.00	3.73	93.3	90-110
/07/98	CCV*980207*7	1028*6010/3050	Cadmium	MG/KG-	4.00	3.86	96.5	90-110
/07/98	CCV*980207*7	1029*6010/3050	Chromium	MG/KG-	4.00	3.81	95.3	90-110
02/07/98	CCV*980207*7	1078*6010/3050	Silver	MG/KG-	0.400	0.367	91.8	90-110

KATALYST BATCH : P40828

Interference Check Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/07/98	ICS*AB*1	1008*6010/3050	Barium	MG/KG-	0.500	0.461	92.2	80-120
02/07/98	ICS*AB*1	1028*6010/3050	Cadmium	MG/KG-	1.00	0.857	85.7	80-120
02/07/98	ICS*AB*1	1029*6010/3050	Chromium	MG/KG-	0.500	0.448	89.6	80-120
02/07/98	ICS*AB*1	1078*6010/3050	Silver	MG/KG-	1.00	0.925	92.5	80-120
02/07/98	ICS*AB*2	1008*6010/3050	Barium	MG/KG-	0.500	0.456	91.2	80-120
02/07/98	ICS*AB*2	1028*6010/3050	Cadmium	MG/KG-	1.00	0.863	86.3	80-120
02/07/98	ICS*AB*2	1029*6010/3050	Chromium	MG/KG-	0.500	0.452	90.4	80-120
02/07/98	ICS*AB*2	1078*6010/3050	Silver	MG/KG-	1.00	0.914	91.4	80-120
02/07/98	ICS*AB*3	1008*6010/3050	Barium	MG/KG-	0.500	0.450	90.0	80-120
02/07/98	ICS*AB*3	1028*6010/3050	Cadmium	MG/KG-	1.00	0.864	86.4	80-120
02/07/98	ICS*AB*3	1029*6010/3050	Chromium	MG/KG-	0.500	0.447	89.4	80-120
02/07/98	ICS*AB*3	1078*6010/3050	Silver	MG/KG-	1.00	0.907	90.7	80-120

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/07/98	ICV*980207*1	1008*6010/3050	Barium	MG/KG-	6.00	5.86	97.7	90-110
02/07/98	ICV*980207*1	1028*6010/3050	Cadmium	MG/KG-	6.00	5.82	97.0	90-110
02/07/98	ICV*980207*1	1029*6010/3050	Chromium	MG/KG-	6.00	5.82	97.0	90-110
02/07/98	ICV*980207*1	1078*6010/3050	Silver	MG/KG-	0.600	0.571	95.2	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/07/98	LCS*98MP27046*1	1008*6010/3050	Barium	MG/KG-	500	447	89.4	80-120
02/07/98	LCS*98MP27046*1	1028*6010/3050	Cadmium	MG/KG-	500	445	89.0	80-120
02/07/98	LCS*98MP27046*1	1029*6010/3050	Chromium	MG/KG-	500	446	89.2	80-120
02/07/98	LCS*98MP27046*1	1078*6010/3050	Silver	MG/KG-	50.0	43.1	86.2	80-120
02/07/98	LCS*98MP27055*1	1008*6010/3050	Barium	MG/KG-	500	420	84.0	80-120
02/07/98	LCS*98MP27055*1	1028*6010/3050	Cadmium	MG/KG-	500	425	85.0	80-120
02/07/98	LCS*98MP27055*1	1029*6010/3050	Chromium	MG/KG-	500	420	84.0	80-120
02/07/98	LCS*98MP27055*1	1078*6010/3050	Silver	MG/KG-	50.0	41.2	82.4	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/07/98	MB*98MP27046*1	1008*6010/3050	Barium	MG/KG-	0.080	1.00
02/07/98	MB*98MP27046*1	1028*6010/3050	Cadmium	MG/KG-	0.080	0.500
02/07/98	MB*98MP27046*1	1029*6010/3050	Chromium	MG/KG-	0.203	1.00
02/07/98	MB*98MP27046*1	1078*6010/3050	Silver	MG/KG-	0.161	2.00
02/07/98	MB*98MP27055*1	1008*6010/3050	Barium	MG/KG-	0.080	1.00
02/07/98	MB*98MP27055*1	1028*6010/3050	Cadmium	MG/KG-	0.020	0.500
02/07/98	MB*98MP27055*1	1029*6010/3050	Chromium	MG/KG-	ND	1.00
02/07/98	MB*98MP27055*1	1078*6010/3050	Silver	MG/KG-	ND	2.00

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/07/98	RP*26653*11	1008*6010/3050	Barium	MG/KG-	137	143	4.30		20
02/07/98	**RP*26653*11**	**1028*6010/3050**	**Cadmium**	**MG/KG-**	**0.644**	**0.962**	**39.6**		**20**
02/07/98	RP*26653*11	1029*6010/3050	Chromium	MG/KG-	15.2	15.8	3.90		20
02/07/98	RP*26653*11	1078*6010/3050	Silver	MG/KG-	<2.54	<2.56			20
02/07/98	RP*26668*2	1008*6010/3050	Barium	MG/KG-	92.6	102	9.70		20
02/07/98	RP*26668*2	1028*6010/3050	Cadmium	MG/KG-	<0.633	<0.639			20
02/07/98	RP*26668*2	1029*6010/3050	Chromium	MG/KG-	14.9	15.3	2.60		20
02/07/98	RP*26668*2	1078*6010/3050	Silver	MG/KG-	<2.53	<2.56			20

KATALYST BATCH : P40828

mple Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/07/98	SPM1*26653*11	1008	Barium	MG/KG-	137	642	502	78.2	75-125		
/07/98	SPM1*26653*11	1028	Cadmium	MG/KG-	0.644	642	490	76.3	75-125		
/07/98	SPM1*26653*11	1029	Chromium	MG/KG-	15.2	642	481	74.9	75-125		
02/07/98	SPM1*26653*11	1078	Silver	MG/KG-	0.310	64.2	49.8	77.6	54-125		
02/07/98	SPM2*26653*11	1008	Barium	MG/KG-	137	644	577	89.6	75-125	13.6	20
/07/98	SPM2*26653*11	1028	Cadmium	MG/KG-	0.644	644	546	84.8	75-125	10.6	20
/07/98	SPM2*26653*11	1029	Chromium	MG/KG-	15.2	644	545	84.6	75-125	12.2	20
/07/98	SPM2*26653*11	1078	Silver	MG/KG-	0.310	64.4	53.8	83.5	54-125	7.50	20
02/07/98	SPM1*26668*2	1008	Barium	MG/KG-	92.6	634	550	86.8	75-125		
02/07/98	SPM1*26668*2	1028	Cadmium	MG/KG-	0.136	634	513	80.9	75-125		
/07/98	SPM1*26668*2	1029	Chromium	MG/KG-	14.9	634	515	81.2	75-125		
/07/98	SPM1*26668*2	1078	Silver	MG/KG-	0.051	63.4	50.7	80.0	54-125		
02/07/98	SPM2*26668*2	1008	Barium	MG/KG-	92.6	629	575	91.4	75-125	5.30	20
02/07/98	SPM2*26668*2	1028	Cadmium	MG/KG-	0.136	629	520	82.7	75-125	2.10	20
/07/98	SPM2*26668*2	1029	Chromium	MG/KG-	14.9	629	525	83.5	75-125	2.80	20
/07/98	SPM2*26668*2	1078	Silver	MG/KG-	0.051	62.9	50.9	80.9	54-125	1.10	20

Spike into Matrix Recovery Summary

TE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
/07/98	SPX*26653*11	1008*6010/3050	Barium	MG/KG-	635	594	93.5	75-125
02/07/98	SPX*26653*11	1028*6010/3050	Cadmium	MG/KG-	635	589	92.8	75-125
02/07/98	SPX*26653*11	1029*6010/3050	Chromium	MG/KG-	635	590	92.9	75-125
/07/98	SPX*26653*11	1078*6010/3050	Silver	MG/KG-	63.5	57.3	90.2	75-125
/07/98	SPX*26668*2	1008*6010/3050	Barium	MG/KG-	633	567	89.6	75-125
/07/98	SPX*26668*2	1028*6010/3050	Cadmium	MG/KG-	633	569	89.9	75-125
02/07/98	SPX*26668*2	1029*6010/3050	Chromium	MG/KG-	633	572	90.4	75-125
02/07/98	SPX*26668*2	1078*6010/3050	Silver	MG/KG-	63.3	55.9	88.3	75-125

KATALYST BATCH : P40828

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40828 Analysis Date: 02/07/98 Analyst: JON BUERCK Report Date: 03/19/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCB present?	X		
CCB within acceptance criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICS present?	X		
ICS within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?		X	1028*6010/3050
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	1029*6010/3050
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X		
Analytical spike present?	X		
Analytical spike within acceptance criteria?	X		

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40859
NALYSIS : SW7421

QC TYPE : FDER/SW
ANALYST : JON BUERCK
XTRACTOR : TOM FERRELL
ATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/19/98 15:12
ANALYSIS DATE/TIME : 02/11/98
EXTRACT DATE : 02/04/98

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
6653	CLIENT	110S01 5100	QST ST.LOUIS/BOEING	Daniel Moore

AMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA'26653*1	S21B1 1'-2'	02/10/98	04:18PM
A'26653*2	S21B1 27'-28'	02/10/98	04:30PM
A'26653*3	S21B2 1'-2'	02/10/98	04:41PM
DA'26653*4	S21B2 13'-15'	02/10/98	05:05PM
DA'26653*5	S21B3 4'-5'	02/10/98	05:16PM
A'26653*6	S21B3 17'-21'	02/10/98	05:27PM
A'26653*7	S21B4 2'-3'	02/10/98	05:38PM
A'26653*8	S21B4 7'-9'	02/10/98	06:01PM
DA'26653*9	S21B5 2'-4'	02/10/98	06:12PM
DA'26653*11	S21B5 10'-12'	02/10/98	06:24PM
A'26653*12	S21B6 2'-4'	02/10/98	07:05PM
A'26653*13	S21B6 10'-12'	02/10/98	07:16PM
DA'26653*6	S21B3 17'-21'	02/11/98	04:26PM
DA'26653*12	S21B6 2'-4'	02/11/98	04:37PM

KATALYST BATCH : P40859

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/10/98	CCB*980210PB*1	1052*7421/3050	Lead	MG/KG-	ND
02/10/98	CCB*980210PB*2	1052*7421/3050	Lead	MG/KG-	ND
02/10/98	CCB*980210PB*3	1052*7421/3050	Lead	MG/KG-	ND
02/10/98	CCB*980210PB*4	1052*7421/3050	Lead	MG/KG-	ND
02/10/98	CCB*980210PB*5	1052*7421/3050	Lead	MG/KG-	ND
02/10/98	CCB*980210PB*6	1052*7421/3050	Lead	MG/KG-	ND
02/10/98	CCB*980210PB*7	1052*7421/3050	Lead	MG/KG-	ND
02/10/98	CCB*980210PB*8	1052*7421/3050	Lead	MG/KG-	ND
02/10/98	CCB*980210PB*9	1052*7421/3050	Lead	MG/KG-	ND
02/11/98	CCB*980211PB*1	1052*7421/3050	Lead	MG/KG-	0.00003
02/11/98	CCB*980211PB*2	1052*7421/3050	Lead	MG/KG-	ND
02/11/98	CCB*980211PB*3	1052*7421/3050	Lead	MG/KG-	ND
02/11/98	CCB*980211PB*4	1052*7421/3050	Lead	MG/KG-	ND
02/11/98	CCB*980211PB*5	1052*7421/3050	Lead	MG/KG-	ND
02/11/98	CCB*980211PB*6	1052*7421/3050	Lead	MG/KG-	0.00002

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/10/98	CCV*980210PB*1	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110
02/10/98	CCV*980210PB*2	1052*7421/3050	Lead	MG/KG-	0.020	0.021	105	90-110
02/10/98	CCV*980210PB*3	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110
02/10/98	CCV*980210PB*4	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110
02/10/98	CCV*980210PB*5	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110
02/10/98	CCV*980210PB*6	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110
02/10/98	CCV*980210PB*7	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110
02/10/98	CCV*980210PB*8	1052*7421/3050	Lead	MG/KG-	0.020	0.019	95.0	90-110
02/10/98	CCV*980210PB*9	1052*7421/3050	Lead	MG/KG-	0.020	0.019	95.0	90-110
02/11/98	CCV*980211PB*1	1052*7421/3050	Lead	MG/KG-	0.020	0.021	105	90-110
02/11/98	CCV*980211PB*2	1052*7421/3050	Lead	MG/KG-	0.020	0.019	95.0	90-110
02/11/98	CCV*980211PB*3	1052*7421/3050	Lead	MG/KG-	0.020	0.019	95.0	90-110
02/11/98	CCV*980211PB*4	1052*7421/3050	Lead	MG/KG-	0.020	0.019	95.0	90-110
02/11/98	CCV*980211PB*5	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110
02/11/98	CCV*980211PB*6	1052*7421/3050	Lead	MG/KG-	0.020	0.019	95.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/10/98	ICV*980210PB*1	1052*7421/3050	Lead	MG/KG-	0.030	0.032	107	90-110
02/11/98	ICV*980211PB*1	1052*7421/3050	Lead	MG/KG-	0.030	0.031	103	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/10/98	LCS*98MP27054*1	1052*7421/3050	Lead	MG/KG-	2.00	2.28	114.0	80-120
02/10/98	LCS*98MP27045*1	1052*7421/3050	Lead	MG/KG-	2.00	1.95	97.5	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/10/98	MB*98MP27054*1	1052*7421/3050	Lead	MG/KG-	ND	0.500
02/10/98	MB*98MP27045*1	1052*7421/3050	Lead	MG/KG-	ND	0.500

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/10/98	**RP*26668*2**	**1052*7421/3050**	**Lead**	**MG/KG-**	**14.4**	**10.1**	**35.1**		**20**
02/10/98	RP*26653*11	1052*7421/3050	Lead	MG/KG-	11.5	11.2			20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/10/98	SPM1*26668*2	1052	Lead	MG/KG-	14.4	2.52	3.00	119.0	75-125		
02/10/98	**SPM2*26668*2**	**1052**	**Lead**	**MG/KG-**	**14.4**	**2.52**	**0.100**	**3.97**	**75-125**	**187**	**20**
02/10/98	**SPM1*26653*11**	**1052**	**Lead**	**MG/KG-**	**11.5**	**2.54**	**1.90**	**74.8**	**75-125**		
02/10/98	SPM2*26653*11	1052	Lead	MG/KG-	11.5	2.57	2.30	89.5	75-125	17.8	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/10/98	SPX*26668*1	1052*7421/3050	Lead	MG/KG-	12.3	11.0	89.4	85-115
02/10/98	SPX*26668*2	1052*7421/3050	Lead	MG/KG-	12.8	11.6	90.6	85-115
02/10/98	SPX*26668*3	1052*7421/3050	Lead	MG/KG-	24.6	24.8	100.8	85-115

KATALYST BATCH : P40859

pike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/10/98	SPX*26668*4	1052*7421/3050	Lead	MG/KG-	12.8	11.4	89.1	85-115
02/10/98	SPX*26668*5	1052*7421/3050	Lead	MG/KG-	25.2	24.7	98.0	85-115
02/10/98	SPX*26668*6	1052*7421/3050	Lead	MG/KG-	12.5	12.8	102.4	85-115
02/10/98	SPX*26668*7	1052*7421/3050	Lead	MG/KG-	12.8	12.5	97.7	85-115
02/10/98	SPX*26668*8	1052*7421/3050	Lead	MG/KG-	5.15	4.59	89.1	85-115
02/10/98	SPX*26668*9	1052*7421/3050	Lead	MG/KG-	12.6	11.6	92.1	85-115
02/10/98	SPX*26668*10	1052*7421/3050	Lead	MG/KG-	5.12	4.36	85.2	85-115
02/10/98	SPX*26668*11	1052*7421/3050	Lead	MG/KG-	25.3	23.6	93.3	85-115
02/10/98	SPX*26668*12	1052*7421/3050	Lead	MG/KG-	12.8	12.5	97.7	85-115
02/10/98	SPX*26653*1	1052*7421/3050	Lead	MG/KG-	12.3	10.8	87.8	85-115
02/10/98	**SPX*26653*2**	**1052*7421/3050**	**Lead**	**MG/KG-**	**5.12**	**4.25**	**83.0**	**85-115**
02/10/98	SPX*26653*3	1052*7421/3050	Lead	MG/KG-	24.9	24.2	97.2	85-115
02/10/98	SPX*26653*4	1052*7421/3050	Lead	MG/KG-	13.3	11.3	85.0	85-115
02/10/98	**SPX*26653*5**	**1052*7421/3050**	**Lead**	**MG/KG-**	**5.02**	**3.91**	**77.9**	**85-115**
02/10/98	**SPX*26653*7**	**1052*7421/3050**	**Lead**	**MG/KG-**	**12.4**	**10.4**	**83.9**	**85-115**
02/10/98	SPX*26653*8	1052*7421/3050	Lead	MG/KG-	12.5	11.5	92.0	85-115
02/10/98	SPX*26653*9	1052*7421/3050	Lead	MG/KG-	12.6	10.8	85.7	85-115
02/10/98	**SPX*26653*11**	**1052*7421/3050**	**Lead**	**MG/KG-**	**12.8**	**10.7**	**83.6**	**85-115**
02/10/98	SPX*26653*13	1052*7421/3050	Lead	MG/KG-	12.9	11.2	86.8	85-115
02/11/98	SPX*26653*6	1052*7421/3050	Lead	MG/KG-	52.0	52.6	101.2	85-115
02/11/98	SPX*26653*12	1052*7421/3050	Lead	MG/KG-	120	106	88.3	85-115

KATALYST BATCH : P40859

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40859 Analysis Date: 02/11/98 Analyst: JON BUERCK Report Date: 03/19/98

	Yes	No		
Are ALL units documented in batch?	X			
Analysis holding time within criteria?	X			
CCB present?	X			
CCB within acceptance criteria?	X			
CCV present?	X			
CCV within acceptance criteria?	X			
ICV present?	X			
ICV within acceptance criteria?	X			
LCS present?	X			
LCS within acceptance criteria?	X			
Method blank present?	X			
Method blank within acceptance criteria?	X			
Sample replicate present?	X			
Sample replicate within acceptance criteria?		X	1052*7421/3050	
Sample matrix spike present?	X			
Sample matrix spike within acceptance criteria?		X	1052*7421/3050	SPX*26653*7 Exceeds criteria. (Recovery Limit [illegible]
Sample matrix spike duplicate present?	X			
Sample matrix spike duplicate within acceptance criteria?		X	1052*7421/3050	SPX*26653*7 Exceeds criteria. (Recovery Limit [illegible]
Analytical spike present?	X			
Analytical spike within acceptance criteria?		X	1052*7421/3050	

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40836
ANALYSIS : SW7060

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/19/98 15:13
ANALYSIS DATE/TIME : 02/09/98
EXTRACT DATE : 02/04/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26653	CLIENT	110S01 5100	QST ST.LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
IDA*26653*2	S21B1 27'-28'	02/06/98	12:05AM
IDA*26653*1	S21B1 1'-2'	02/06/98	03:31PM
IDA*26653*3	S21B2 1'-2'	02/06/98	03:43PM
IDA*26653*4	S21B2 13'-15'	02/06/98	03:55PM
IDA*26653*5	S21B3 4'-5'	02/06/98	04:18PM
IDA*26653*6	S21B3 17'-21'	02/06/98	04:30PM
IDA*26653*7	S21B4 2'-3'	02/06/98	04:41PM
IDA*26653*8	S21B4 7'-9'	02/06/98	04:53PM
IDA*26653*9	S21B5 2'-4'	02/06/98	05:04PM
IDA*26653*11	S21B5 10'-12'	02/06/98	05:26PM
IDA*26653*12	S21B6 2'-4'	02/06/98	05:55PM
IDA*26653*13	S21B6 10'-12'	02/06/98	06:07PM

KATALYST BATCH : P40836

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/06/98	CCB*980205AS*1	1003*7060/3050	Arsenic	MG/KG-	ND
02/06/98	CCB*980206AS*1	1003*7060/3050	Arsenic	MG/KG-	0.00007
02/06/98	CCB*980206AS*2	1003*7060/3050	Arsenic	MG/KG-	ND
02/06/98	CCB*980206AS*3	1003*7060/3050	Arsenic	MG/KG-	0.0001
02/06/98	CCB*980206AS*4	1003*7060/3050	Arsenic	MG/KG-	ND
02/09/98	CCB*980209AS*1	1003*7060/3050	Arsenic	MG/KG-	0.0003
02/09/98	CCB*980209AS*2	1003*7060/3050	Arsenic	MG/KG-	ND
02/09/98	CCB*980209AS*3	1003*7060/3050	Arsenic	MG/KG-	0.0008

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/06/98	CCV*980205AS*1	1003*7060/3050	Arsenic	MG/KG-	0.020	0.020	100.0	90-110
02/06/98	CCV*980206AS*1	1003*7060/3050	Arsenic	MG/KG-	0.020	0.021	105	90-110
02/06/98	CCV*980206AS*2	1003*7060/3050	Arsenic	MG/KG-	0.020	0.021	105	90-110
02/06/98	CCV*980206AS*3	1003*7060/3050	Arsenic	MG/KG-	0.020	0.020	100.0	90-110
02/06/98	CCV*980206AS*4	1003*7060/3050	Arsenic	MG/KG-	0.020	0.021	105	90-110
02/09/98	CCV*980209AS*1	1003*7060/3050	Arsenic	MG/KG-	0.020	0.021	105	90-110
02/09/98	CCV*980209AS*2	1003*7060/3050	Arsenic	MG/KG-	0.020	0.021	105	90-110
02/09/98	CCV*980209AS*3	1003*7060/3050	Arsenic	MG/KG-	0.020	0.021	105	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/05/98	ICV*980205AS*1	1003*7060/3050	Arsenic	MG/KG-	0.030	0.030	100.0	90-110
02/06/98	ICV*980206AS*1	1003*7060/3050	Arsenic	MG/KG-	0.030	0.030	100.0	90-110
02/09/98	ICV*980209AS*1	1003*7060/3050	Arsenic	MG/KG-	0.030	0.031	103	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/05/98	LCS*98MP27045*1	1003*7060/3050	Arsenic	MG/KG-	2.00	1.78	89.0	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/06/98	MB*98MP27045*1	1003*7060/3050	Arsenic	MG/KG-	ND	5.00

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/06/98	RP*26653*11	1003*7060/3050	Arsenic	MG/KG-	10.6	11.0	3.70		20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/06/98	**SPM1*26653*11**	**1003**	**Arsenic**	**MG/KG-**	**10.6**	**2.54**	**1.30**	**51.2**	**75-125**		
02/06/98	**SPM2*26653*11**	**1003**	**Arsenic**	**MG/KG-**	**10.6**	**2.57**	**3.30**	**128.4**	**75-125**	**85.8**	**20**

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/06/98	SPX*26653*2	1003*7060/3050	Arsenic	MG/KG-	2.56	2.65	103.5	85-115
02/06/98	SPX*26653*1	1003*7060/3050	Arsenic	MG/KG-	24.5	26.0	106.1	85-115
02/06/98	SPX*26653*3	1003*7060/3050	Arsenic	MG/KG-	9.97	10.4	104.3	85-115
02/06/98	SPX*26653*4	1003*7060/3050	Arsenic	MG/KG-	5.32	5.19	97.6	85-115
02/06/98	SPX*26653*5	1003*7060/3050	Arsenic	MG/KG-	12.5	12.7	101.6	85-115
02/06/98	SPX*26653*6	1003*7060/3050	Arsenic	MG/KG-	13.0	13.7	105.4	85-115
02/06/98	SPX*26653*7	1003*7060/3050	Arsenic	MG/KG-	12.4	13.4	108.1	85-115
02/06/98	SPX*26653*8	1003*7060/3050	Arsenic	MG/KG-	5.01	5.27	105.2	85-115
02/06/98	SPX*26653*9	1003*7060/3050	Arsenic	MG/KG-	25.3	26.9	106.3	85-115
02/06/98	**SPX*26653*11**	**1003*7060/3050**	**Arsenic**	**MG/KG-**	**12.8**	**16.6**	**129.7**	**85-115**
02/06/98	SPX*26653*12	1003*7060/3050	Arsenic	MG/KG-	12.0	12.5	104.2	85-115
02/06/98	SPX*26653*13	1003*7060/3050	Arsenic	MG/KG-	12.9	13.8	107.0	85-115

KATALYST BATCH : P40836

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40836 Analysis Date: 02/09/98 Analyst: JON BUERCK Report Date: 03/19/98

	Yes	No	
re ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CB present?	X		
CB within acceptance criteria?	X		
CCV present?	X		
CV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
CS present?	X		
CS within acceptance criteria?	X		
Method blank present?	X		
ethod blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?	X		
ample matrix spike present?	X		
ample matrix spike within acceptance criteria?		X	1003*7060/3050 SPX*26653*11 Exceeds criteria. (Recovery Limit 10
Sample matrix spike duplicate present?	X		
ample matrix spike duplicate within acceptance criteria?		X	1003*7060/3050 SPX*26653*11 Exceeds criteria. (Recovery Limit 10
Analytical spike present?	X		
Analytical spike within acceptance criteria?		X	1003*7060/3050

ATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40833
ANALYSIS : SW7740

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/19/98 15:13
ANALYSIS DATE/TIME : 02/09/98
EXTRACT DATE : 02/04/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26653	CLIENT	110S01 5100	QST ST.LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26653*1	S21B1 1'-2'	02/05/98	07:13PM
DA*26653*2	S21B1 27'-28'	02/05/98	07:25PM
DA*26653*3	S21B2 1'-2'	02/05/98	07:50PM
DA*26653*4	S21B2 13'-15'	02/05/98	08:02PM
DA*26653*5	S21B3 4'-5'	02/05/98	08:15PM
DA*26653*6	S21B3 17'-21'	02/05/98	08:27PM
DA*26653*7	S21B4 2'-3'	02/05/98	08:39PM
DA*26653*8	S21B4 7'-9'	02/05/98	09:03PM
DA*26653*9	S21B5 2'-4'	02/05/98	09:15PM
DA*26653*11	S21B5 10'-12'	02/05/98	09:27PM
DA*26653*12	S21B6 2'-4'	02/05/98	10:11PM
DA*26653*13	S21B6 10'-12'	02/05/98	10:23PM
RP*266653*11	DA or RPn not found!		

KATALYST BATCH : P40833

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/05/98	CCB*980205SE*1	1148*7740/3050	Selenium	MG/KG-	0.0006
02/05/98	CCB*980205SE*2	1148*7740/3050	Selenium	MG/KG-	0.0005
02/05/98	CCB*980205SE*3	1148*7740/3050	Selenium	MG/KG-	0.0003
02/05/98	CCB*980205SE*4	1148*7740/3050	Selenium	MG/KG-	0.0002
02/09/98	CCB*980209SE*1	1148*7740/3050	Selenium	MG/KG-	ND
02/09/98	CCB*980209SE*2	1148*7740/3050	Selenium	MG/KG-	ND
02/09/98	CCB*980209SE*3	1148*7740/3050	Selenium	MG/KG-	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/05/98	CCV*980205SE*1	1148*7740/3050	Selenium	MG/KG-	0.020	0.021	105	90-110
02/05/98	CCV*980205SE*2	1148*7740/3050	Selenium	MG/KG-	0.020	0.021	105	90-110
02/05/98	CCV*980205SE*3	1148*7740/3050	Selenium	MG/KG-	0.020	0.020	100.0	90-110
02/05/98	CCV*980205SE*4	1148*7740/3050	Selenium	MG/KG-	0.020	0.020	100.0	90-110
02/09/98	CCV*980209SE*1	1148*7740/3050	Selenium	MG/KG-	0.020	0.020	100.0	90-110
02/09/98	CCV*980209SE*2	1148*7740/3050	Selenium	MG/KG-	0.020	0.020	100.0	90-110
02/09/98	CCV*980209SE*3	1148*7740/3050	Selenium	MG/KG-	0.020	0.019	95.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/05/98	ICV*980205SE*1	1148*7740/3050	Selenium	MG/KG-	0.030	0.031	103	90-110
02/09/98	ICV*980209SE*1	1148*7740/3050	Selenium	MG/KG-	0.030	0.031	103	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/05/98	LCS*98MP27045*1	1148*7740/3050	Selenium	MG/KG-	2.00	2.23	111.5	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/05/98	MB*98MP27045*1	1148*7740/3050	Selenium	MG/KG-	0.062	0.500

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/05/98	RP*266653*11	1148*7740/3050	Selenium	MG/KG-	0.0	U*2			20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/05/98	SPM1*26653*11	1148	Selenium	MG/KG-	0.906	2.54	2.32	91.3	75-125		
02/05/98	SPM2*26653*11	1148	Selenium	MG/KG-	0.906	2.57	2.35	91.4	75-125	0.0	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/05/98	SPX*26653*1	1148*7740/3050	Selenium	MG/KG-	2.45	2.72	111.0	85-115
02/05/98	SPX*26653*2	1148*7740/3050	Selenium	MG/KG-	2.56	2.70	105.5	85-115
02/05/98	SPX*26653*3	1148*7740/3050	Selenium	MG/KG-	2.49	2.68	107.6	85-115
02/05/98	SPX*26653*4	1148*7740/3050	Selenium	MG/KG-	2.66	2.92	109.8	85-115
02/05/98	SPX*26653*5	1148*7740/3050	Selenium	MG/KG-	2.51	2.54	101.2	85-115
02/05/98	SPX*26653*6	1148*7740/3050	Selenium	MG/KG-	2.60	2.51	96.5	85-115
02/05/98	SPX*26653*7	1148*7740/3050	Selenium	MG/KG-	2.49	2.50	100.4	85-115
02/05/98	SPX*26653*8	1148*7740/3050	Selenium	MG/KG-	2.51	2.35	93.6	85-115
02/05/98	SPX*26653*9	1148*7740/3050	Selenium	MG/KG-	2.53	2.27	89.7	85-115
02/05/98	SPX*26653*11	1148*7740/3050	Selenium	MG/KG-	2.57	2.72	105.8	85-115
02/05/98	**SPX*26653*12**	**1148*7740/3050**	**Selenium**	**MG/KG-**	**2.41**	**1.95**	**80.9**	**85-115**
02/05/98	SPX*26653*13	1148*7740/3050	Selenium	MG/KG-	2.58	2.78	107.8	85-115

KATALYST BATCH : P40833

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40833 Analysis Date: 02/09/98 Analyst: JON BUERCK Report Date: 03/19/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCB present?	X		
CCB within acceptance criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?	X		
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X		
Analytical spike present?	X		
Analytical spike within acceptance criteria?		X	1148*7740/3050

BATCH OVERRIDE BY: TROY AVERY 1006

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40873
NALYSIS : SW7471

QC TYPE : FDER/SW
ANALYST : TODD PETERSON
EXTRACTOR : TOM FERRELL
ATA ENTRY : TODD PETERSON

REPORT DATE/TIME : 03/19/98 15:13
ANALYSIS DATE/TIME : 02/09/98
EXTRACT DATE : 02/08/98

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

ATCH NOTES
7471 HG

IELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
6653	CLIENT	110S01 5100	QST ST.LOUIS/BOEING	Daniel Moore

SAMPLE ODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
A*26653*2	S21B1 27'-28'	02/09/98	11:40AM
A*26653*3	S21B2 1'-2'	02/09/98	11:42AM
DA*26653*4	S21B2 13'-15'	02/09/98	11:45AM
DA*26653*5	S21B3 4'-5'	02/09/98	11:47AM
A*26653*6	S21B3 17'-21'	02/09/98	11:49AM
A*26653*7	S21B4 2'-3'	02/09/98	11:52AM
DA*26653*8	S21B4 7'-9'	02/09/98	11:59AM
DA*26653*9	S21B5 2'-4'	02/09/98	12:01PM
A*26653*12	S21B6 2'-4'	02/09/98	12:12PM
A*26653*13	S21B6 10'-12'	02/09/98	12:15PM
A*26653*1	S21B1 1'-2'	02/09/98	12:23PM
DA*26653*7*C	S21B4 2'-3'	02/09/98	12:25PM
DA*26653*8*C	S21B4 7'-9'	02/09/98	12:27PM
A*26653*12*C	S21B6 2'-4'	02/09/98	12:39PM
A*26653*11	S21B5 10'-12'	02/11/98	03:51PM

KATALYST BATCH : P40873

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/09/98	CCB*980209HG*1	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*3	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*4	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*5	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*6	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*7	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*8	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*9	71921*7471	Mercury	MG/KG-	0.00002
02/09/98	CCB*980209HG*10	71921*7471	Mercury	MG/KG-	ND
02/11/98	CCB*980211HG*1	71921*7471	Mercury	MG/KG-	0.00008
02/11/98	CCB*980211HG*2	71921*7471	Mercury	MG/KG-	0.00007
02/11/98	CCB*980211HG*3	71921*7471	Mercury	MG/KG-	0.00008
02/11/98	CCB*980211HG*4	71921*7471	Mercury	MG/KG-	0.00008
02/11/98	CCB*980211HG*5	71921*7471	Mercury	MG/KG-	0.00008

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	CCV*980209HG*1	71921*7471	Mercury	MG/KG-	0.0050	0.0051	102.0	90-110
02/09/98	CCV*980209HG*3	71921*7471	Mercury	MG/KG-	0.0050	0.0050	100.00	90-110
02/09/98	CCV*980209HG*4	71921*7471	Mercury	MG/KG-	0.0050	0.0049	98.00	90-110
02/09/98	CCV*980209HG*5	71921*7471	Mercury	MG/KG-	0.0050	0.0048	96.00	90-110
02/09/98	CCV*980209HG*6	71921*7471	Mercury	MG/KG-	0.0050	0.0048	96.00	90-110
02/09/98	CCV*980209HG*7	71921*7471	Mercury	MG/KG-	0.0050	0.0048	96.00	90-110
02/09/98	CCV*980209HG*8	71921*7471	Mercury	MG/KG-	0.0050	0.0048	96.00	90-110
02/09/98	CCV*980209HG*9	71921*7471	Mercury	MG/KG-	0.0050	0.0047	94.00	90-110
02/09/98	CCV*980209HG*10	71921*7471	Mercury	MG/KG-	0.0050	0.0047	94.00	90-110
02/11/98	CCV*980211HG*1	71921*7471	Mercury	MG/KG-	0.0050	0.0051	102.0	90-110
02/11/98	CCV*980211HG*2	71921*7471	Mercury	MG/KG-	0.0050	0.0052	104.0	90-110
02/11/98	CCV*980211HG*3	71921*7471	Mercury	MG/KG-	0.0050	0.0052	104.0	90-110
02/11/98	CCV*980211HG*4	71921*7471	Mercury	MG/KG-	0.0050	0.0052	104.0	90-110
02/11/98	CCV*980211HG*5	71921*7471	Mercury	MG/KG-	0.0050	0.0051	102.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	**ICV*980209HG*1**	**71921*7471**	**Mercury**	**MG/KG-**	**0.0025**	**0.0028**	**112.0**	**90-110**
02/11/98	ICV*980211HG*1	71921*7471	Mercury	MG/KG-	0.0025	0.0027	108.0	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	LCS*MP27059*1	71921*7471	Mercury	MG/KG-	0.1667	0.1883	112.96	80-120
02/09/98	LCS*MP27061*1	71921*7471	Mercury	MG/KG-	0.1667	0.1750	104.98	80-120
02/11/98	LCS*MP27066*1	71921*7471	Mercury	MG/KG-	0.1667	0.1917	115.00	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/09/98	MB*MP27059*1	71921*7471	Mercury	MG/KG-	0.0008	0.0200
02/09/98	MB*MP27061*1	71921*7471	Mercury	MG/KG-	ND	0.0200
02/11/98	MB*MP27066*1	71921*7471	Mercury	MG/KG-	0.0187	0.0200

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/11/98	**RP*26682*2**	**71921*7471**	**Mercury**	**MG/KG-**	**0.0491**	**0.0646**	**27.30**		**20**
02/11/98	RP*26653*11	71921*7471	Mercury	MG/KG-	0.0673	0.0600	11.50		20
02/11/98	RP*26679*2	71921*7471	Mercury	MG/KG-	0.0532	0.0647	19.50		20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/11/98	SPM1*26682*2	71921	Mercury	MG/KG-	0.0491	0.2126	0.2400	112.89	75-125		
02/11/98	**SPM2*26682*2**	**71921**	**Mercury**	**MG/KG-**	**0.0491**	**0.2126**	**0.2804**	**131.89**	**75-125**	**15.50**	**20**
02/11/98	SPM1*26653*11	71921	Mercury	MG/KG-	0.0673	0.2151	0.2273	105.67	75-125		
02/11/98	SPM2*26653*11	71921	Mercury	MG/KG-	0.0673	0.2151	0.2424	112.69	75-125	6.400	20
02/11/98	SPM1*26679*2	71921	Mercury-	MG/KG-	0.0532	0.2129	0.2427	114.00	75-125		
02/11/98	SPM2*26679*2	71921	Mercury	MG/KG-	0.0532	0.2129	0.2427	114.00	75-125	0.0	20

KATALYST BATCH : P40873

Katalyst Analytical Technologies, Inc.
Computer QC Checks

atch No.: P40873 Analysis Date: 02/09/98 Analyst: TODD PETERSON Report Date: 03/19/98

	Yes	No	
e ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CB present?	X		
CB within acceptance criteria?	X		
CCV present?	X		
CV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
CS present?	X		
CS within acceptance criteria?	X		
Method blank present?	X		
ethod blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?		X	71921*7471
ample matrix spike present?	X		
ample matrix spike within acceptance criteria?	X		
Sample matrix spike duplicate present?	X		
ample matrix spike duplicate within acceptance criteria?		X	71921*7471

ATCH OVERRIDE BY: MIKE TRAVIS 1003

INALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40865
ANALYSIS : 9010

QC TYPE : FDER/SW
ANALYST : HEATHER SLEE
EXTRACTOR : HEATHER SLEE
DATA ENTRY : HEATHER SLEE

REPORT DATE/TIME : 03/19/98 15:14
ANALYSIS DATE/TIME : 02/11/98 16:00
EXTRACT DATE : 01/10/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
BOEING SOIL CN

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26653	CLIENT	110S01 5100	QST ST.LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26653*1	S21B1 1'-2'	02/11/98	04:25PM
DA*26653*2	S21B1 27'-28'	02/11/98	04:26PM
DA*26653*3	S21B2 1'-2'	02/11/98	04:27PM
DA*26653*4	S21B2 13'-15'	02/11/98	04:28PM
DA*26653*5	S21B3 4'-5'	02/11/98	04:29PM
DA*26653*6	S21B3 17'-21'	02/11/98	04:30PM
DA*26653*7	S21B4 2'-3'	02/11/98	04:31PM
DA*26653*8	S21B4 7'-9'	02/11/98	05:00PM
DA*26653*9	S21B5 2'-4'	02/11/98	05:01PM
DA*26653*11	S21B5 10'-12'	02/11/98	05:02PM
DA*26653*12	S21B6 2'-4'	02/11/98	05:20PM
DA*26653*13	S21B6 10'-12'	02/11/98	05:21PM

KATALYST BATCH : P40865

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
/11/98	LCS*CN_980210*1	61556*9010	Cyanide	MG/KG	10.00	9.22	92.2	80-120
/11/98	LCS*CN_980210*2	61556*9010	Cyanide	MG/KG	20.0	18.9	94.5	80-120
02/11/98	LCS*CN_980211*1	61556*9010	Cyanide	MG/KG	10.00	9.17	91.7	80-120
02/11/98	LCS*CN_980211*2	61556*9010	Cyanide	MG/KG	20.0	19.1	95.5	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/11/98	MB*CN_980210*1	61556*9010	Cyanide	MG/KG	ND	0.500
/11/98	MB*CN_980211*1	61556*9010	Cyanide	MG/KG	ND	0.500

Sample Matrix Spike Recovery Summary

ATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
/11/98	SPM1*26653*11	61556	Cyanide	MG/KG	0.0	10.00	9.02	90.2	75-125		
/11/98	SPM2*26653*11	61556	Cyanide	MG/KG	0.0	10.00	9.07	90.7	75-125	0.600	20

KATALYST BATCH : P40865

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40865 Analysis Date: 02/11/98 Analyst: HEATHER SLEE Report Date: 03/19/98

	Yes	No
Are ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
No. of calibration standards present acceptable?	X	
Curve correlation coefficient >= 0.995?	X	
Calibration curve y-intercept < curve detection limit?	X	
Sample responses within highest standard response?	X	
LCS present?	X	
LCS within acceptance criteria?	X	
Method blank present?	X	
Method blank within acceptance criteria?	X	
Sample matrix spike present?	X	
Sample matrix spike within acceptance criteria?	X	
Sample matrix spike duplicate present?	X	
Sample matrix spike duplicate within acceptance criteria?	X	

BATCH OVERRIDE BY:

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40800
NALYSIS : E160.3

QC TYPE : FDER/SW
ANALYST : TOM FERRELL
EXTRACTOR :
ATA ENTRY : SPREADSHEET UPLOAD

REPORT DATE/TIME : 03/19/98 15:14
ANALYSIS DATE/TIME :
EXTRACT DATE :

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26653	CLIENT	110S01 5100	QST ST.LOUIS/BOEING	Daniel Moore

AMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26653*1	S21B1 1'-2'		
A*26653*2	S21B1 27'-28'		
A*26653*3	S21B2 1'-2'		
A*26653*4	S21B2 13'-15'		
DA*26653*5	S21B3 4'-5'		
DA*26653*6	S21B3 17'-21'		
A*26653*7	S21B4 2'-3'		
A*26653*8	S21B4 7'-9'		
DA*26653*9	S21B5 2'-4'		
DA*26653*11	S21B5 10'-12'		
A*26653*12	S21B6 2'-4'		
A*26653*13	S21B6 10'-12'		

KATALYST BATCH : P40800

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40800 Analysis Date: Analyst: TOM FERRELL Report Date: 03/19/98

	Yes	No
Are ALL units documented in batch?	X	
Analysis holding time within criteria?	X	

BATCH OVERRIDE BY:

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40839
NALYSIS : OA-1

C TYPE : FDER/SW
ANALYST : DANA FRANKLIN
EXTRACTOR :
ATA ENTRY : DANA FRANKLIN

REPORT DATE/TIME : 03/19/98 15:14
ANALYSIS DATE/TIME : 02/09/98
EXTRACT DATE :

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

ATCH NOTES
OA-1 SOILS BTEX DATA

IELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
6653	CLIENT	110S01 5100	QST ST.LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
A*26653*11	S21B5 10'-12'	02/09/98	11:33AM

ATALYST BATCH : P40839

ethod Blank Sample Summary

ATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/09/98	MB*MEOH2*1	34031*OA1	Benzene	UG/KG	ND	0.09
02/09/98	MB*MEOH2*1	34011*OA1	Toluene	UG/KG	ND	0.05
2/09/98	MB*MEOH2*1	81552*OA1	Xylenes, Total	UG/KG	ND	0.2
2/09/98	MB*MEOH2*1	34372*OA1	Ethylbenzene	UG/KG	ND	0.07
02/09/98	MB*MEOH2*1	97235*OA1	m-and/or p-Xylene	UG/KG	ND	0.1
02/09/98	MB*MEOH2*1	99420*OA1	o-Xylene	UG/KG	ND	0.07

ample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/09/98	**SPM2*26653*11**	**34031**	**Benzene**	**UG/KG**	**0.0**	**2500**	**1000**	**40**	**42-146**		

urrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
2/09/98	DA*26653*11	96100*SUR	AAA TRIFLUOROTOLUENE	UG/L	3750	1970	53	53-126
2/09/98	**RP*26653*11**	**96100*SUR**	**AAA TRIFLUOROTOLUENE**	**UG/L**	**3750**	**1760**	**47**	**53-126**
2/09/98	**SPM2*26653*11**	**96100*SUR**	**AAA TRIFLUOROTOLUENE**	**UG/L**	**3750**	**1940**	**52**	**53-126**

KATALYST BATCH : P40839

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40839 Analysis Date: 02/09/98 Analyst: DANA FRANKLIN Report Date: 03/19/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
Sample retention times within window?	X		
Sample relative retention times within window?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	34031*OA1
Sample matrix spike duplicate present?		X	
Sample matrix spike duplicate within acceptance criteria?			
Surrogate present?	X		
Surrogate within acceptance criteria?		X	96100*SUR

BATCH OVERRIDE BY: TROY AVERY 1006

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40823
NALYSIS : OA-1/5030

C TYPE : FDER/SW
ANALYST : DANA FRANKLIN
EXTRACTOR :
ATA ENTRY : DANA FRANKLIN

REPORT DATE/TIME : 03/19/98 15:14
ANALYSIS DATE/TIME : 02/07/98
EXTRACT DATE :

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

ATCH NOTES
OA-1 SOILS

IELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
6653	CLIENT	110S01 5100	QST ST.LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
A*26653*11	S21B5 10'-12'	02/07/98	06:02PM

ATALYST BATCH : P40823

aboratory Control Sample Summary

ATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/07/98	LCS*GAS*1	97471*OA1	Gasoline Range Organics	UG/KG-	500	490	98	50-150

ethod Blank Sample Summary

ATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/07/98	MB*MEOH*1	97471*OA1	Gasoline Range Organics	UG/KG-	4600	8900

ample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/07/98	SPM1*26653*11	97471	Gasoline Range Organics	UG/KG-	93000	63000	67000	106	50-150		

urrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
2/07/98	DA*26653*11	96100*SUR	AAA TRIFLUOROTOLUENE	UG/L	3750	1410	38	53-126
/07/98	RP*26653*11	96100*SUR	AAA TRIFLUOROTOLUENE	UG/L	3750	1440	38	53-126

KATALYST BATCH : P40823

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40823 Analysis Date: 02/07/98 Analyst: DANA FRANKLIN Report Date: 03/19/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
Sample retention times within window?	X		
Sample relative retention times within window?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?	X		
Sample matrix spike duplicate present?		X	
Sample matrix spike duplicate within acceptance criteria?			
Surrogate present?	X		
Surrogate within acceptance criteria?		X	96100*SUR

BATCH OVERRIDE BY: TROY AVERY 1006

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40820
ANALYSIS : OA-2

QC TYPE : FDER/SW
ANALYST :
EXTRACTOR :
DATA ENTRY :

REPORT DATE/TIME : 03/19/98 15:14
ANALYSIS DATE/TIME : 02/06/98
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
OA-2 SOIL

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26653	CLIENT	110S01 5100	QST ST.LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
OA'26653*11	S21B5 10'-12'	02/06/98	11:25PM
OA'26653*11*D	S21B5 10'-12'	02/07/98	02:24PM

KATALYST BATCH : P40820

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/06/98	LCS*3572*1	97472*OA2	Total Extractable Hydrocarbons	MG/KG-	33.3	29.3	88.0	50-150

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/06/98	MB*3572*1	97472*OA2	Total Extractable Hydrocarbons	MG/KG-	ND	10.00

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/07/98	**SPM1*26653*11**	**97472**	**Total Extractable Hydrocarbons**	**MG/KG-**	**218E**	**33.3**	**274**		**50-150**		
02/07/98	**SPM2*26653*11**	**97472**	**Total Extractable Hydrocarbons**	**MG/KG-**	**218E**	**33.3**	**292**		**50-150**	**6.30**	**50**

KATALYST BATCH : P40820

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40820 Analysis Date: 02/06/98 Analyst: Report Date: 03/19/98

	Yes	No	
e ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
xtraction holding time within criteria?	X		
Sample retention times within window?	X		
CS present?	X		
CS within acceptance criteria?	X		
Method blank present?	X		
ethod blank within acceptance criteria?	X		
ample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	97472*OA2
ample matrix spike duplicate present?	X		
ample matrix spike duplicate within acceptance criteria?		X	97472*OA2

BATCH OVERRIDE BY: TROY AVERY 1006

INALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P41047
ANALYSIS : 8240

QC TYPE : FDER/SW
ANALYST : TROY AVERY
EXTRACTOR :
DATA ENTRY : GCMS UPLOAD

REPORT DATE/TIME : 03/19/98 15:14
ANALYSIS DATE/TIME : 03/02/98
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
8240 SOILS

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26653	CLIENT	110S01 5100	QST ST.LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26653*11	S21B5 10'-12'	02/16/98	05:40PM

KATALYST BATCH : P41047

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	LCS*H021698*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	64.6	129.2	59-172
02/16/98	LCS*H021698*1	34237*8240/5030	Benzene	UG/KG-	50.0	63.9	127.8	66-142
02/16/98	LCS*H021698*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	54.7	109.4	62-137
02/16/98	LCS*H021698*1	34483*8240/5030	Toluene	UG/KG-	50.0	64.6	129.2	59-139
02/16/98	LCS*H021698*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	61.5	123.0	60-133
02/17/98	LCS*H021798*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	66.5	133.0	59-172
02/17/98	LCS*H021798*1	34237*8240/5030	Benzene	UG/KG-	50.0	60.0	120.0	66-142
02/17/98	LCS*H021798*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	50.7	101.4	62-137
02/17/98	LCS*H021798*1	34483*8240/5030	Toluene	UG/KG-	50.0	58.5	117.0	59-139
02/17/98	LCS*H021798*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	54.4	108.8	60-133
02/18/98	LCS*H021898*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	76.3	152.6	59-172
02/18/98	LCS*H021898*1	34237*8240/5030	Benzene	UG/KG-	50.0	65.1	130.2	66-142
02/18/98	LCS*H021898*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	55.0	110.0	62-137
02/18/98	LCS*H021898*1	34483*8240/5030	Toluene	UG/KG-	50.0	62.1	124.2	59-139
02/18/98	LCS*H021898*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	58.0	116.0	60-133
02/19/98	LCS*H021998*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	61.5	123.0	59-172
02/19/98	LCS*H021998*1	34237*8240/5030	Benzene	UG/KG-	50.0	57.4	114.8	66-142
02/19/98	LCS*H021998*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	51.2	102.4	62-137
02/19/98	LCS*H021998*1	34483*8240/5030	Toluene	UG/KG-	50.0	53.9	107.8	59-139
02/19/98	LCS*H021998*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	54.2	108.4	60-133
02/20/98	LCS*H022098*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	65.0	130.0	59-172
02/20/98	LCS*H022098*1	34237*8240/5030	Benzene	UG/KG-	50.0	56.3	112.6	66-142
02/20/98	LCS*H022098*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	47.9	95.8	62-137
02/20/98	LCS*H022098*1	34483*8240/5030	Toluene	UG/KG-	50.0	50.5	101.0	59-139
02/20/98	LCS*H022098*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	50.0	100.0	60-133
03/01/98	LCS*H030198*3	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	57.5	115.0	59-172
03/01/98	LCS*H030198*3	34237*8240/5030	Benzene	UG/KG-	50.0	54.3	108.6	66-142
03/01/98	LCS*H030198*3	34487*8240/5030	Trichloroethene	UG/KG-	50.0	54.3	108.6	62-137
03/01/98	LCS*H030198*3	34483*8240/5030	Toluene	UG/KG-	50.0	54.1	108.2	59-139
03/01/98	LCS*H030198*3	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	55.0	110.0	60-133
03/02/98	LCS*H030298*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	59.7	119.4	59-172
03/02/98	LCS*H030298*1	34237*8240/5030	Benzene	UG/KG-	50.0	56.1	112.2	66-142
03/02/98	LCS*H030298*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	57.1	114.2	62-137
03/02/98	LCS*H030298*1	34483*8240/5030	Toluene	UG/KG-	50.0	56.2	112.4	59-139
03/02/98	LCS*H030298*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	57.6	115.2	60-133

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/16/98	MB*H021698*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75059*8240/5030	Acetone	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34426*8240/5030	Methylene Chloride	UG/KG-	1.43	5.00
02/16/98	MB*H021698*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75078*8240/5030	2-Butanone	UG/KG-	2.28	10.00
02/16/98	MB*H021698*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34478*8240/5030	Tetrachloroethene	UG/KG-	0.57	5.00
02/16/98	MB*H021698*1	75166*8240/5030	2-Hexanone	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00

KATALYST BATCH : P41047

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/16/98	MB*H021698*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75059*8240/5030	Acetone	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34426*8240/5030	Methylene Chloride	UG/KG-	1.28	5.00
02/17/98	MB*H021798*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75078*8240/5030	2-Butanone	UG/KG-	4.00	10.00
02/17/98	MB*H021798*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34478*8240/5030	Tetrachloroethene	UG/KG-	0.67	5.00
02/17/98	MB*H021798*1	75166*8240/5030	2-Hexanone	UG/KG-	0.91	10.00
02/17/98	MB*H021798*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75059*8240/5030	Acetone	UG/KG-	5.77	10.00
02/18/98	MB*H021898*1	34426*8240/5030	Methylene Chloride	UG/KG-	0.53	5.00
02/18/98	MB*H021898*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75078*8240/5030	2-Butanone	UG/KG-	2.26	10.00
02/18/98	MB*H021898*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34478*8240/5030	Tetrachloroethene	UG/KG-	2.82	5.00
02/18/98	MB*H021898*1	75166*8240/5030	2-Hexanone	UG/KG-	0.89	10.00
02/18/98	MB*H021898*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/19/98	MB*H021998*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00

KATALYST BATCH : P41047

thod Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/19/98	MB*H021998*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/19/98	MB*H021998*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
/19/98	MB*H021998*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
/19/98	MB*H021998*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	75059*8240/5030	Acetone	UG/KG-	3.47	10.00
02/19/98	MB*H021998*1	34426*8240/5030	Methylene Chloride	UG/KG-	ND	5.00
/19/98	MB*H021998*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
/19/98	MB*H021998*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
/19/98	MB*H021998*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	75078*8240/5030	2-Butanone	UG/KG-	2.42	10.00
/19/98	MB*H021998*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
/19/98	MB*H021998*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
/19/98	MB*H021998*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
/19/98	MB*H021998*1	34487*8240/5030	Trichloroethene	UG/KG-	0.52	5.00
/19/98	MB*H021998*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
/19/98	MB*H021998*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
/19/98	MB*H021998*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
/19/98	MB*H021998*1	34478*8240/5030	Tetrachloroethene	UG/KG-	ND	5.00
/19/98	MB*H021998*1	75166*8240/5030	2-Hexanone	UG/KG-	1.09	10.00
/19/98	MB*H021998*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
/19/98	MB*H021998*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
/19/98	MB*H021998*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
/20/98	MB*H022098*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
/20/98	MB*H022098*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
/20/98	MB*H022098*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/20/98	MB*H022098*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/20/98	MB*H022098*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
/20/98	MB*H022098*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
/20/98	MB*H022098*1	75059*8240/5030	Acetone	UG/KG-	3.35	10.00
02/20/98	MB*H022098*1	34426*8240/5030	Methylene Chloride	UG/KG-	0.65	5.00
02/20/98	MB*H022098*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
/20/98	MB*H022098*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
/20/98	MB*H022098*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
/20/98	MB*H022098*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	75078*8240/5030	2-Butanone	UG/KG-	3.88	10.00
02/20/98	MB*H022098*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
/20/98	MB*H022098*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
/20/98	MB*H022098*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
/20/98	MB*H022098*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
/20/98	MB*H022098*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
/20/98	MB*H022098*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
/20/98	MB*H022098*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
/20/98	MB*H022098*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34478*8240/5030	Tetrachloroethene	UG/KG-	0.95	5.00
/20/98	MB*H022098*1	75166*8240/5030	2-Hexanone	UG/KG-	1.36	10.00
/20/98	MB*H022098*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
/20/98	MB*H022098*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
/20/98	MB*H022098*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
/20/98	MB*H022098*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
03/01/98	MB*H030198*4	34421*8240/5030	Chloromethane	UG/KG-	ND	1250
03/01/98	MB*H030198*4	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	1250
03/01/98	MB*H030198*4	34416*8240/5030	Bromomethane	UG/KG-	ND	1250
03/01/98	MB*H030198*4	34314*8240/5030	Chloroethane	UG/KG-	ND	1250
03/01/98	MB*H030198*4	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	625

KATALYST BATCH : P41047

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
03/01/98	MB*H030198*4	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	625
03/01/98	MB*H030198*4	75059*8240/5030	Acetone	UG/KG-	795	1250
03/01/98	MB*H030198*4	34426*8240/5030	Methylene Chloride	UG/KG-	105	625
03/01/98	MB*H030198*4	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	625
03/01/98	MB*H030198*4	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	625
03/01/98	MB*H030198*4	75078*8240/5030	2-Butanone	UG/KG-	289	1250
03/01/98	MB*H030198*4	34318*8240/5030	Chloroform	UG/KG-	ND	625
03/01/98	MB*H030198*4	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	625
03/01/98	MB*H030198*4	34237*8240/5030	Benzene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34487*8240/5030	Trichloroethene	UG/KG-	95.7	625
03/01/98	MB*H030198*4	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	625
03/01/98	MB*H030198*4	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	1250
03/01/98	MB*H030198*4	34483*8240/5030	Toluene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34478*8240/5030	Tetrachloroethene	UG/KG-	124	625
03/01/98	MB*H030198*4	75166*8240/5030	2-Hexanone	UG/KG-	286	1250
03/01/98	MB*H030198*4	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34304*8240/5030	Chlorobenzene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34374*8240/5030	Ethylbenzene	UG/KG-	ND	625
03/01/98	MB*H030198*4	45510*8240/5030	Xylenes (total)	UG/KG-	ND	625
03/01/98	MB*H030198*4	75192*8240/5030	Styrene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34290*8240/5030	Bromoform	UG/KG-	ND	625
03/01/98	MB*H030198*4	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34421*8240/5030	Chloromethane	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34416*8240/5030	Bromomethane	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34314*8240/5030	Chloroethane	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	625
03/02/98	MB*H030298*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	625
03/02/98	MB*H030298*1	75059*8240/5030	Acetone	UG/KG-	782	1250
03/02/98	MB*H030298*1	34426*8240/5030	Methylene Chloride	UG/KG-	80.3	625
03/02/98	MB*H030298*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	625
03/02/98	MB*H030298*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	625
03/02/98	MB*H030298*1	75078*8240/5030	2-Butanone	UG/KG-	391	1250
03/02/98	MB*H030298*1	34318*8240/5030	Chloroform	UG/KG-	ND	625
03/02/98	MB*H030298*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	625
03/02/98	MB*H030298*1	34237*8240/5030	Benzene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34487*8240/5030	Trichloroethene	UG/KG-	97.6	625
03/02/98	MB*H030298*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	625
03/02/98	MB*H030298*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34483*8240/5030	Toluene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34478*8240/5030	Tetrachloroethene	UG/KG-	295	625
03/02/98	MB*H030298*1	75166*8240/5030	2-Hexanone	UG/KG-	271	1250
03/02/98	MB*H030298*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	625
03/02/98	MB*H030298*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	625
03/02/98	MB*H030298*1	75192*8240/5030	Styrene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34290*8240/5030	Bromoform	UG/KG-	ND	625
03/02/98	MB*H030298*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	625

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/16/98	SPM1*26653*11	34504	1,1-Dichloroethene	UG/KG-	0.0	64.5	90.2	139.8	59-172		
02/16/98	SPM1*26653*11	34237	Benzene	UG/KG-	0.0	64.5	84.4	130.9	66-142		
02/16/98	SPM1*26653*11	34487	Trichloroethene	UG/KG-	0.0	64.5	69.3	107.4	62-137		
02/16/98	SPM1*26653*11	34483	Toluene	UG/KG-	0.0	64.5	86.1	133.5	59-139		

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Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/16/98	SPM1*26653*11	34304	Chlorobenzene	UG/KG-	0.0	64.5	77.8	120.6	60-133		
02/16/98	SPM2*26653*11	34504	1,1-Dichloroethene	UG/KG-	0.0	64.5	91.5	141.9	59-172	1.40	22
02/16/98	SPM2*26653*11	34237	Benzene	UG/KG-	0.0	64.5	82.8	128.4	66-142	2.00	21
02/16/98	SPM2*26653*11	34487	Trichloroethene	UG/KG-	0.0	64.5	68.0	105.4	62-137	1.90	24
02/16/98	SPM2*26653*11	34483	Toluene	UG/KG-	0.0	64.5	81.4	126.2	59-139	5.60	21
02/16/98	SPM2*26653*11	34304	Chlorobenzene	UG/KG-	0.0	64.5	74.5	115.5	60-133	4.30	21
02/16/98	SPM1*26668*2	34504	1,1-Dichloroethene	UG/KG-	0.0	64.0	89.9	140.5	59-172		
02/16/98	SPM1*26668*2	34237	Benzene	UG/KG-	0.0	64.0	83.6	130.6	66-142		
02/16/98	SPM1*26668*2	34487	Trichloroethene	UG/KG-	0.0	64.0	68.9	107.7	62-137		
02/16/98	SPM1*26668*2	34483	Toluene	UG/KG-	0.0	64.0	83.1	129.8	59-139		
02/16/98	SPM1*26668*2	34304	Chlorobenzene	UG/KG-	0.0	64.0	73.3	114.5	60-133		
02/16/98	SPM2*26668*2	34504	1,1-Dichloroethene	UG/KG-	0.0	64.0	88.9	138.9	59-172	1.10	22
02/16/98	SPM2*26668*2	34237	Benzene	UG/KG-	0.0	64.0	88.5	138.3	66-142	5.70	21
02/16/98	SPM2*26668*2	34487	Trichloroethene	UG/KG-	0.0	64.0	73.3	114.5	62-137	6.10	24
02/16/98	SPM2*26668*2	34483	Toluene	UG/KG-	0.0	64.0	83.3	130.2	59-139	0.20	21
02/16/98	SPM2*26668*2	34304	Chlorobenzene	UG/KG-	0.0	64.0	76.0	118.8	60-133	3.60	21
02/20/98	SPM1*26688*2	34504	1,1-Dichloroethene	UG/KG-	0.0	63.6	87.5	137.6	59-172		
02/20/98	**SPM1*26688*2**	**34237**	**Benzene**	**UG/KG-**	**0.0**	**63.6**	**91.1**	**143.2**	**66-142**		
02/20/98	SPM1*26688*2	34487	Trichloroethene	UG/KG-	1.38	63.6	74.4	117.0	62-137		
02/20/98	SPM1*26688*2	34483	Toluene	UG/KG-	0.0	63.6	86.0	135.2	59-139		
02/20/98	SPM1*26688*2	34304	Chlorobenzene	UG/KG-	0.0	63.6	78.9	124.1	60-133		
02/20/98	SPM2*26688*2	34504	1,1-Dichloroethene	UG/KG-	0.0	63.6	83.3	131.0	59-172	5.00	22
02/20/98	SPM2*26688*2	34237	Benzene	UG/KG-	0.0	63.6	84.5	132.9	66-142	7.50	21
02/20/98	SPM2*26688*2	34487	Trichloroethene	UG/KG-	1.38	63.6	71.7	112.7	62-137	3.80	24
02/20/98	SPM2*26688*2	34483	Toluene	UG/KG-	0.0	63.6	80.7	126.9	59-139	6.30	21
02/20/98	SPM2*26688*2	34304	Chlorobenzene	UG/KG-	0.0	63.6	74.2	116.7	60-133	6.20	21

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	DA*26653*11	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	53	110	70-121
02/16/98	DA*26653*11	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	56	110	81-121
02/16/98	DA*26653*11	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	48	96	74-121
02/16/98	SPM1*26653*11	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	57	110	70-121
02/16/98	SPM1*26653*11	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	57	110	81-121
02/16/98	SPM1*26653*11	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	52	100	74-121
02/16/98	SPM2*26653*11	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	61	120	70-121
02/16/98	SPM2*26653*11	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	57	110	81-121
02/16/98	SPM2*26653*11	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	54	110	74-121

KATALYST BATCH : P41047

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P41047 Analysis Date: 03/02/98 Analyst: TROY AVERY Report Date: 03/19/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	34237*8240/5030
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X		
Surrogate present?	X		
Surrogate within acceptance criteria?	X		

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

CHAIN OF CUSTODY DOCUMENTATION

KATALYST
ANALYTICAL TECHNOLOGIES, INC.

8901 N. Industrial Road • Suite 100 • Peoria, IL 61615
Phone: (309) 589-8000 • Fax: (309) 692-5232

FOR LAB USE ONLY
Project Number: ____-____
Due Date: ____-____-____

Chain of Custody Record

18336

Company: QST
Address: 11665 Lilburn Park Rd
St. Louis, MO 63146

Phone #: 314 567-4600 Fax #: (__)____-____
P.O. #: ____
Client Contact: Scott George
Project # / Location: Boeing

Sample Type:
1. Water
2. Soil
3. Sludge
4. Oil
5. Tissue
Other : ____

Container Type:
P - Plastic
G - Glass
V - VOC

Preservative:
1. None 3. HNO3
2. H2SO4 4. NaOH

Sample I.D. (10 Characters ONLY)	Sample Type	Container Size	Container Type	Container No.	Sampling Date	Sampling Time	Preservative	Lab I.D.	8 RCRA Metals	Cyanide	OA-1/OA-2 VOCs	Comments
S21B1 1'-2'	Soil	8oz	G	1	2-2-98	0905	Ice	16653 *1	X	X		
S21B1 27'-28'	Soil					1015		*2	X	X		
S21B2 1'-2'	Soil					1145		*3	X	X		
S21B2 13'-15'	Soil					1210		*4	X	X		
S21B3 4'-5'	Soil					1250		*5	X	X		
S21B3 17'-21'	Soil					1330		*6	X	X		
S21B4 2'-3'	Soil					1355		*7	X	X		
S21B4 7'-9'	Soil					1405		*8	X	X		
S21B5 2'-4'	Soil	↓	↓	↓		1425		*9	X	X		
S21B5 7'-8'	Soil	8oz 4oz	G	2		1440		*10	X	X	HOLD	
S21B5 10'-12'	Soil	8oz 4oz	G	2	↓	1450	↓	*11	X	X	X	

Relinquished By: Scott George
Date: 2-2-98
Time: 1800

Relinquished By:
Date: -- --
Time: :

Received By:

Received For Lab By:

Date: -- --
Time: :

Date: 2-3-98
Time: 09:15

TURNAROUND TIME:
☐ RUSH: ____ day turnaround
☒ ROUTINE

FOR LAB USE ONLY
Samples Received Chilled
☒ Yes
☐ No

Copies: White - Client Canary - Lab Receiving Pink - Lab File Goldenrod - Retained by Sampler

SPECIAL INSTRUCTIONS:

KATALYST
ANALYTICAL TECHNOLOGIES, INC.

8901 N. Industrial Road • Suite 100 • Peoria, IL 61615
Phone: (309) 589-8000 • Fax: (309) 692-5232

FOR LAB USE ONLY
Project Number: ____-____
Due Date: ____-____-____

Chain of Custody Record

18331

Company: QSI
Address: 11665 Lilburn Park Rd.
St. Louis, MO 63146

Phone #: 314 567-4600 Fax #: (__)____-____
P.O. #:
Client Contact: Scott George
Project # / Location: Boeing

Sample Type:
1. Water
2. Soil
3. Sludge
4. Oil
5. Tissue
Other : _____

Container Type:
P - Plastic
G - Glass
V - VOC

Preservative:
1. None 3. HNO3
2. H2SO4 4. NaOH

Analyses

Sample I.D. (10 Characters ONLY)	Sample Type	Container Size	Container Type	Container No.	Sampling Date	Sampling Time	Preservative	Lab I.D.	6 RCRA Metals	Cyanide	Comments
S21B6 2-4'	Soil	8oz	G	1	2-2-98	1520	Ice	26653 #12	X	X	
S21B6 10-12'	Soil	8oz	G	1	2-2-98	1540	Ice	#13	X	X	

Relinquished By:	Date: 2-2-98 Time: 18:00	Received By:	Date: -- -- Time: :
Relinquished By:	Date: -- -- Time: :	Received For Lab By:	Date: 2-3-98 Time: 09:15

TURNAROUND TIME:
☐ RUSH: _____ day turnaround
☑ ROUTINE

FOR LAB USE ONLY
Samples Received Chilled
☑ Yes
☐ No

SPECIAL INSTRUCTIONS:

Copies: White - Client Canary - Lab Receiving Pink - Lab File Goldenrod - Retained by Sampler

KATALYST
ANALYTICAL TECHNOLOGIES, INC.

March 19, 1998

Mr. Scott George
QST Environmental
11665 Lilburn Park Road
St. Louis, MO 63146

Dear Mr. George,

Katalyst Analytical Technologies, Inc., appreciates the opportunity to provide the attached report of analyses for Katalyst sample delivery group #26668, received 02/04/98 by our laboratory. This deliverable includes case narrative, tabulated results, QC summeries, dates report and chain of custody documentation.

Should you have any questions regarding this data, please contact me at (309) 589-8004.

Sincerely,

KATALYST ANALYTICAL TECHNOLOGIES, INC.

Dan Moore
Project Manager

Attachments

8901 N. Industrial Road • Suite 100 • Peoria, IL 61615-1581 • Phone: (309) 589-8000 • Fax: (309) 692-5232 • www.katalyst1.com

CASE NARRATIVE

KATALYST
ANALYTICAL TECHNOLOGIES, INC.

CASE NARRATIVE/VALIDATION REPORT

QST Environmental / Boeing
Fg# 26668

Katalyst Analytical Technologies, Inc., received 12 soil samples on 2/4/98 on ice and in good condition. The sample set was designated as one sample delivery batch, 26668 for RCRA Metals, Volatile Organics and Polynuclear Aromatic Hydrocarbon analyses.

LAB NO.	CLIENT ID	DATE COLLECTED	DATE RECEIVED
26668*1	S10B14 4'-5'	2/3/98	2/4/98
26668*2	S10B1 6'-7'	2/3/98	2/4/98
26668*3	S10B2 3'-5'	2/3/98	2/4/98
26668*4	S10B2 5'-6'	2/3/98	2/4/98
26668*5	S10B4 3'-5'	2/3/98	2/4/98
26668*6	S26B1 2'-3'	2/3/98	2/4/98
26668*7	S26B1 7'-9'	2/3/98	2/4/98
26668*8	S26B1 10'-11'	2/3/98	2/4/98
26668*9	S26B2 3'-4'	2/3/98	2/4/98
26668*10	S26B2 7'-8'	2/3/98	2/4/98
26668*11	S26B3 2'-3'	2/3/98	2/4/98
26668*12	S26B3 9'-11'	2/3/98	2/4/98

RCRA Metals (SW 846 6010/7470) Project Summary:

The samples were digested and analyzed within method holding-times.

RCRA Metals (SW 846 6010/7470) QC Summary:

All holding time criteria were met.

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RCRA Metals (SW 846 6010/7470) QC Summary Cont.:

All initial and continuing calibration standards met the criteria of the methods.

The laboratory method blanks did not contain any target analytes of interest.

The Laboratory Control Sample (LCS) demonstrated recoveries within method specified limits.

The replicates were within method specified limits with the exception of arsenic and lead. The replicates were not within method specified limits due to the sample containing high levels or trace concentrations of the element. Post digestion spikes were performed.

Several analyses required serial dilutions to be performed. In some instances, the serial dilution did not meet method acceptance criteria. Post digestion spikes and the method of standard additions were utilized to verify matrix interference and quantify sample and QC results, where applicable.

The associated matrix spike and duplicates (MS/MSD) were performed on samples 26668*2 and 26653*11 from this project. All MS/MSD recoveries were within method specified limits except for the chromium, lead and arsenic and selenium analyses. The chromium and lead MS (26653*11) recoveries are slightly below (0.1 -1.5%) method specified limits. A post digestion spike was performed and was within method specified limits, verifying matrix interference. The lead and arsenic MS/MSD (266653) recoveries are not within method specified limits due to the concentrations of these elements in the associate sample overwhelming the amount spiked. The selenium recovery in the MS (26668*2) was slightly less than method specified limits. A post digestion spike was performed which was within method specified limits

Volatile Organics (8240) Project Summary:

The samples were analyzed on 02/16 & 17/98, within the method specified hold-time.

Volatile Organics (8240) QC Summary:

All holding time criteria were met.

The laboratory method blank did not contain any analytes of interest above the reporting limit.

All initial and continuing calibration standards met the criteria of the method except for the following: trans-1,2-dichlorothene in the continuing calibration verification standard. All samples associated with these CCVs did not contain trans-1,2-dichloroethene. Identification of this analyte is unaffected by the outlier. Therefore, the data is unaffected as reported

The surrogate spike recoveries were within method specified limits except for the following: 1,2-dichloroethene-d4 recoveries were greater than method specified limits for samples 26668*2 and *6; toluene-d8 recoveries were greater than method specified limits for samples 26668*3, *5, and *11. Matrix interference was verified by subsequent re-analysis.

All spike recoveries in the laboratory control sample were within method specified limits.

The associated matrix spike and duplicate were performed on sample 26668*2 and 26653*11 from this project. The matrix spike and duplicate recoveries were within method specified limits except for benzene in 26688*2MS. The

benzene recovery was only 1.2% above method specified limits for sample 26688*2MS. Additionally, the amount of trichloroethene and toluene spiked in 26688*10MS/MSD is insignificant compared to the amount found in the associated sample. The laboratory control sample verifies method and instrument.

PAH (SW 846 8310) Project Summary:

The samples were extracted and analyzed within the method specified hold-time.

PAH (SW 846 8310) QC Summary:

All holding time criteria were met.

The laboratory method blank did not contain any analytes of interest above the reporting limit.

All initial and continuing calibration standards met the criteria of the method.

The surrogate spike recoveries are within method specified limits.

All spike recoveries in the laboratory control sample were within method specified limits.

The associated matrix spike and duplicate was performed on sample 26668*2. The matrix spike and duplicate recoveries were within method specified limits. The RPD for acenapthene was greater than method specified limits. The laboratory control sample verified method and instrument performance.

Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Signature:		Name:	Daniel J. Moore
Date	June 11, 1998	Title:	Project Manager
Signature:		Name:	Michael Travis
Date	June 11, 1998	Title:	QA Manager

ANALYTICAL RESULTS

CLIENT SAMPLE ID'S:			S10B1-4'-5'	S10B1-6'-7'	S10B2-3'-5'
FIELD GROUP:			26668	26668	26668
SEQUENCE #:			1	2	3
DATE COLLECTED:			02/03/98	02/03/98	02/03/98
TIME COLLECTED:			08:50	09:05	09:30
PARAMETERS	UNITS	METHOD			
Acenaphthene	UG/KG-DRY	SW8310	<415	<427	<415
Acenaphthylene	UG/KG-DRY	SW8310	<415	<427	<415
Anthracene	UG/KG-DRY	SW8310	<4.15	<4.27	<4.15
Benzo(a)anthracene	UG/KG-DRY	SW8310	<4.15	<4.27	<4.15
Benzo(a)pyrene	UG/KG-DRY	SW8310	4.43	<4.27	6.27
Benzo(b)fluoranthene	UG/KG-DRY	SW8310	5.03	5.02	8.02
Benzo(g,h,i)perylene	UG/KG-DRY	SW8310	7.79	<4.27	9.98
Benzo(k)fluoranthene	UG/KG-DRY	SW8310	<4.15	<4.27	<4.15
Chrysene	UG/KG-DRY	SW8310	4.35	6.36	4.63
Dibenz(a,h)anthracene	UG/KG-DRY	SW8310	10.8	<4.27	30.7
Fluoranthene	UG/KG-DRY	SW8310	5.46	15.6	14.1
Fluorene	UG/KG-DRY	SW8310	<82.9	<85.4	<83.0
Indeno(1,2,3-cd) pyrene	UG/KG-DRY	SW8310	<4.15	7.26	<4.15
Naphthalene	UG/KG-DRY	SW8310	<415	<427	<415
Phenanthrene	UG/KG-DRY	SW8310	10.6	8.29	15.9
Pyrene	UG/KG-DRY	SW8310	11.6	14.3	17.2
Barium	MG/KG-DRY	SW6010	97	93	150
Cadmium	MG/KG-DRY	SW6010	<0.62	<0.63	<0.61
Chromium	MG/KG-DRY	SW6010	15	15	20
Silver	MG/KG-DRY	SW6010	<2.5	<2.5	<2.5
Arsenic	MG/KG-DRY	SW7060	7.4	11	12
Lead	MG/KG-DRY	SW7421	12	14	14
Mercury	MG/KG-DRY	SW7471	<0.020	0.030	0.030
Selenium	MG/KG-DRY	SW7740	0.78	0.96	1.0
Moisture	%	E160.3	19.6	21.9	19.7
Acetone	UG/KG-DRY	SW8240	16	<13	51

CLIENT SAMPLE ID'S:			S10B1-4'-5'	S10B1-6'-7'	S10B2-3'-5'
FIELD GROUP:			26668	26668	26668
SEQUENCE #:			1	2	3
DATE COLLECTED:			02/03/98	02/03/98	02/03/98
TIME COLLECTED:			08:50	09:05	09:30
PARAMETERS	UNITS	METHOD			
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.2	<6.4	<6.2
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.2	<6.4	<6.2
Tetrachloroethene	UG/KG-DRY	SW8240	<6.2	<6.4	<6.2
Xylenes (total)	UG/KG-DRY	SW8240	<6.2	<6.4	<6.2

CLIENT SAMPLE ID'S:			S10B2 5'-6'	S10B4 3'-5'
FIELD GROUP:			26668	26668
SEQUENCE #:			4	5
DATE COLLECTED:			02/03/98	02/03/98
TIME COLLECTED:			09:35	10:30
PARAMETERS	UNITS	METHOD		
Acenaphthene	UG/KG-DRY	SW8310	<431	<425
Acenaphthylene	UG/KG-DRY	SW8310	<431	<425
Anthracene	UG/KG-DRY	SW8310	<4.31	6.42
Benzo(a)anthracene	UG/KG-DRY	SW8310	<4.31	17.0
Benzo(a)pyrene	UG/KG-DRY	SW8310	15.4	9.31
Benzo(b)fluoranthene	UG/KG-DRY	SW8310	8.42	115
Benzo(g,h,i)perylene	UG/KG-DRY	SW8310	29.9	17.5
Benzo(k)fluoranthene	UG/KG-DRY	SW8310	5.46	<4.25
Chrysene	UG/KG-DRY	SW8310	6.35	13.9
Dibenz(a,h)anthracene	UG/KG-DRY	SW8310	84.2	46.5
Fluoranthene	UG/KG-DRY	SW8310	16.3	<4.25
Fluorene	UG/KG-DRY	SW8310	<86.2	<85.0
Indeno(1,2,3-cd) pyrene	UG/KG-DRY	SW8310	15.8	<4.25
Naphthalene	UG/KG-DRY	SW8310	<431	<425
Phenanthrene	UG/KG-DRY	SW8310	30.2	56.7
Pyrene	UG/KG-DRY	SW8310	16.2	43.4
Barium	MG/KG-DRY	SW6010	130	290
Cadmium	MG/KG-DRY	SW6010	<0.65	<0.63
Chromium	MG/KG-DRY	SW6010	17	15
Silver	MG/KG-DRY	SW6010	<2.6	<2.5
Arsenic	MG/KG-DRY	SW7060	10	<6.3
Lead	MG/KG-DRY	SW7421	18	19
Mercury	MG/KG-DRY	SW7471	0.030	<0.030
Selenium	MG/KG-DRY	SW7740	0.88	1.6
Moisture	%	E160.3	22.7	21.6
Acetone	UG/KG-DRY	SW8240	31	140
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.5	<6.4
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.5	<6.4
Tetrachloroethene	UG/KG-DRY	SW8240	<6.5	<6.4
Xylenes (total)	UG/KG-DRY	SW8240	<6.5	<6.4

PROJECT NUMBER 110S01 5100 PROJECT NAME QST ST. LOUIS/BOEING
FIELD GROUP LAB COORDINATOR Daniel Moore

CLIENT SAMPLE ID'S:			S26B1 2'-3'	S26B1 7'-9'
FIELD GROUP:			26668	26668
SEQUENCE #:			6	7
DATE COLLECTED:			02/03/98	02/03/98
TIME COLLECTED:			12:50	13:10
PARAMETERS	UNITS	METHOD		
Barium	MG/KG-DRY	SW6010	210	120
Cadmium	MG/KG-DRY	SW6010	<0.62	<0.64
Chromium	MG/KG-DRY	SW6010	22	18
Silver	MG/KG-DRY	SW6010	<2.5	<2.6
Arsenic	MG/KG-DRY	SW7060	<6.2	7.6
Lead	MG/KG-DRY	SW7421	7.4	11
Mercury	MG/KG-DRY	SW7471	0.040	<0.030
Selenium	MG/KG-DRY	SW7740	1.2	1.8
Moisture	%	E160.3	21.3	22.1
Acetone	UG/KG-DRY	SW8240	39	<13
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.4	<6.4
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.4	<6.4
Tetrachloroethene	UG/KG-DRY	SW8240	<6.4	<6.4
Xylenes (total)	UG/KG-DRY	SW8240	<6.4	<6.4

CLIENT SAMPLE ID'S:			S26B1 10'-11'	S26B2 3'-4'	S26B2 7'-8'	S26B3 2'-3'
FIELD GROUP:			26668	26668	26668	26668
SEQUENCE #:			8	9	10	11
DATE COLLECTED:			02/03/98	02/03/98	02/03/98	02/03/98
TIME COLLECTED:			13:20	13:40	13:50	14:25
PARAMETERS	UNITS	METHOD				
Barium	MG/KG-DRY	SW6010	89	170	83	220
Cadmium	MG/KG-DRY	SW6010	<0.64	<0.62	<0.64	<0.63
Chromium	MG/KG-DRY	SW6010	15	20	16	22
Silver	MG/KG-DRY	SW6010	<2.5	<2.5	<2.6	<2.5
Arsenic	MG/KG-DRY	SW7060	<6.4	8.6	<6.4	8.1
Lead	MG/KG-DRY	SW7421	8.1	10	7.4	15
Mercury	MG/KG-DRY	SW7471	<0.030	0.040	<0.030	0.030
Selenium	MG/KG-DRY	SW7740	2.5	1.6	<0.64	1.7
Moisture	%	E160.3	22.9	20.5	22.9	21.3
Acetone	UG/KG-DRY	SW8240	34	73	17	24
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.5	<6.3	<6.5	<6.4
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.5	<6.3	<6.5	<6.4
Tetrachloroethene	UG/KG-DRY	SW8240	<6.5	<6.3	<6.5	<6.4
Xylenes (total)	UG/KG-DRY	SW8240	<6.5	<6.3	<6.5	<6.4

CLIENT SAMPLE ID'S:			S26B3 9'-11'
FIELD GROUP:			26668
SEQUENCE #:			12
DATE COLLECTED:			02/03/98
TIME COLLECTED:			14:40
PARAMETERS	UNITS	METHOD	
Barium	MG/KG-DRY	SW6010	110
Cadmium	MG/KG-DRY	SW6010	<0.64
Chromium	MG/KG-DRY	SW6010	12
Silver	MG/KG-DRY	SW6010	<2.5
Arsenic	MG/KG-DRY	SW7060	8.7
Lead	MG/KG-DRY	SW7421	10
Mercury	MG/KG-DRY	SW7471	<0.030
Selenium	MG/KG-DRY	SW7740	1.4
Moisture	%	E160.3	22.4
Acetone	UG/KG-DRY	SW8240	17
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.4
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.4
Tetrachloroethene	UG/KG-DRY	SW8240	<6.4
Xylenes (total)	UG/KG-DRY	SW8240	<6.4

CLIENT SAMPLE ID'S:	S21 MW1
FIELD GROUP:	26668
SEQUENCE #:	13
DATE COLLECTED:	02/03/98
TIME COLLECTED:	08:05

PARAMETERS	UNITS	METHOD	
Barium,total	MG/L	SW6010	1.3
Cadmium,total	MG/L	SW6010	<0.0050
Chromium,total	MG/L	SW6010	0.17
Silver,total	MG/L	SW6010	<0.010
Arsenic,total	MG/L	SW7060	<0.050
Lead,total	MG/L	SW7421	0.075
Mercury,total	MG/L	SW7470	0.00028
Selenium,total	MG/L	SW7740	0.031

Katalyst Analytical Technologies, Inc.
QST ST. LOUIS 26668 DATES REPORT

SAMPLE	STATION ID	COLLECT. TIME	RECEIPT	CLASSIFICATION	LEACHATE	EXTRACTION	DAYS, ACT/HT ANALYSIS	LCH	EXT	ANL	BATCH
				Volatiles	NA	NA	02/16/98 09:37P	NA	NA	13/14	P41047
				Lead-GFAA	NA	NA	02/10/98 12:36P	NA	NA	7/180	P40859
26668*5	S10B4 3'-5'	02/03/98 10:30A	02/04/98	Barium-ICP	NA	NA	02/07/98 02:41P	NA	NA	4/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 02:41P	NA	NA	4/180	P40828
				Chromium-ICP	NA	NA	02/07/98 02:41P	NA	NA	4/180	P40828
				Silver-ICP	NA	NA	02/07/98 02:41P	NA	NA	4/180	P40828
				Arsenic-GFAA	NA	NA	02/09/98 12:02P	NA	NA	6/180	P40837
				Selenium-GFAA	NA	NA	02/06/98 07:32P	NA	NA	3/180	P40834
				Mercury	NA	NA	02/09/98 10:50A	NA	NA	6/28	P40851
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	6/180	P40844
				PNA	NA	02/06/98 03:30A	02/07/98 10:18A	NA	2/14	0/40	P40822
				Volatiles	NA	NA	02/16/98 10:07P	NA	NA	13/14	P41047
				Lead-GFAA	NA	NA	02/10/98 12:48P	NA	NA	7/180	P40859
26668*6	S26B1 2'-3'	02/03/98 12:50P	02/04/98	Barium-ICP	NA	NA	02/07/98 02:44P	NA	NA	4/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 02:44P	NA	NA	4/180	P40828
				Chromium-ICP	NA	NA	02/07/98 02:44P	NA	NA	4/180	P40828
				Silver-ICP	NA	NA	02/07/98 02:44P	NA	NA	4/180	P40828
				Arsenic-GFAA	NA	NA	02/09/98 02:14P	NA	NA	6/180	P40837
				Selenium-GFAA	NA	NA	02/06/98 07:56P	NA	NA	3/180	P40834
				Mercury	NA	NA	02/09/98 10:53A	NA	NA	5/28	P40851
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	6/180	P40844
				Volatiles	NA	NA	02/16/98 10:36P	NA	NA	13/14	P41047
				Lead-GFAA	NA	NA	02/10/98 12:59P	NA	NA	7/180	P40859
26668*7	S26B1 7'-9'	02/03/98 01:10P	02/04/98	Barium-ICP	NA	NA	02/07/98 02:48P	NA	NA	4/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 02:48P	NA	NA	4/180	P40828
				Chromium-ICP	NA	NA	02/07/98 02:48P	NA	NA	4/180	P40828
				Silver-ICP	NA	NA	02/07/98 02:48P	NA	NA	4/180	P40828
				Arsenic-GFAA	NA	NA	02/09/98 02:25P	NA	NA	6/180	P40837
				Selenium-GFAA	NA	NA	02/06/98 08:08P	NA	NA	3/180	P40834
				Mercury	NA	NA	02/09/98 10:55A	NA	NA	5/28	P40851
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	6/180	P40844
				Volatiles	NA	NA	02/16/98 11:05P	NA	NA	13/14	P41047
				Lead-GFAA	NA	NA	02/10/98 01:10P	NA	NA	7/180	P40859
26668*8	S26B1 10'-11'	02/03/98 01:20P	02/04/98	Barium-ICP	NA	NA	02/07/98 02:51P	NA	NA	4/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 02:51P	NA	NA	4/180	P40828
				Chromium-ICP	NA	NA	02/07/98 02:51P	NA	NA	4/180	P40828
				Silver-ICP	NA	NA	02/07/98 02:51P	NA	NA	4/180	P40828
				Arsenic-GFAA	NA	NA	02/09/98 02:37P	NA	NA	6/180	P40837
				Selenium-GFAA	NA	NA	02/06/98 08:20P	NA	NA	3/180	P40834
				Mercury	NA	NA	02/09/98 10:57A	NA	NA	5/28	P40851
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	6/180	P40844
				Volatiles	NA	NA	02/16/98 11:34P	NA	NA	13/14	P41047
				Lead-GFAA	NA	NA	02/10/98 01:21P	NA	NA	7/180	P40859
26668*9	S26B2 3'-4'	02/03/98 01:40P	02/04/98	Barium-ICP	NA	NA	02/07/98 02:55P	NA	NA	4/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 02:55P	NA	NA	4/180	P40828
				Chromium-ICP	NA	NA	02/07/98 02:55P	NA	NA	4/180	P40828
				Silver-ICP	NA	NA	02/07/98 02:55P	NA	NA	4/180	P40828
				Arsenic-GFAA	NA	NA	02/09/98 02:49P	NA	NA	6/180	P40837
				Selenium-GFAA	NA	NA	02/06/98 08:32P	NA	NA	3/180	P40834
				Mercury	NA	NA	02/09/98 10:59A	NA	NA	5/28	P40851
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	6/180	P40844

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

SAMPLE	STATION ID	COLLECT. TIME	RECEIPT	CLASSIFICATION	LEACHATE	EXTRACTION	DAYS, ACT/HT ANALYSIS	LCH	EXT	ANL	BATCH
				Volatiles	NA	NA	02/17/98 12:03A	NA	NA	13/14	P41047
				Lead-GFAA	NA	NA	02/10/98 01:45P	NA	NA	7/180	P40859
26668*10	S26B2 7'-8'	02/03/98 01:50P	02/04/98	Barium-ICP	NA	NA	02/07/98 02:58P	NA	NA	4/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 02:58P	NA	NA	4/180	P40828
				Chromium-ICP	NA	NA	02/07/98 02:58P	NA	NA	4/180	P40828
				Silver-ICP	NA	NA	02/07/98 02:58P	NA	NA	4/180	P40828
				Arsenic-GFAA	NA	NA	02/09/98 03:12P	NA	NA	6/180	P40837
				Selenium-GFAA	NA	NA	02/06/98 08:45P	NA	NA	3/180	P40834
				Mercury	NA	NA	02/09/98 11:02A	NA	NA	5/28	P40851
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	6/180	P40844
				Volatiles	NA	NA	02/17/98 06:39P	NA	NA	14/14	P41047
				Lead-GFAA	NA	NA	02/10/98 01:56P	NA	NA	7/180	P40859
26668*11	S26B3 2'-3'	02/03/98 02:25P	02/04/98	Barium-ICP	NA	NA	02/07/98 03:02P	NA	NA	4/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 03:02P	NA	NA	4/180	P40828
				Chromium-ICP	NA	NA	02/07/98 03:02P	NA	NA	4/180	P40828
				Silver-ICP	NA	NA	02/07/98 03:02P	NA	NA	4/180	P40828
				Arsenic-GFAA	NA	NA	02/09/98 03:24P	NA	NA	6/180	P40837
				Selenium-GFAA	NA	NA	02/06/98 09:10P	NA	NA	3/180	P40834
				Mercury	NA	NA	02/09/98 11:04A	NA	NA	5/28	P40851
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	6/180	P40844
				Volatiles	NA	NA	02/17/98 07:08P	NA	NA	14/14	P41047
				Lead-GFAA	NA	NA	02/10/98 02:08P	NA	NA	6/180	P40859
26668*12	S26B3 9'-11'	02/03/98 02:40P	02/04/98	Barium-ICP	NA	NA	02/07/98 03:12P	NA	NA	4/180	P40828
				Cadmium-ICP	NA	NA	02/07/98 03:12P	NA	NA	4/180	P40828
				Chromium-ICP	NA	NA	02/07/98 03:12P	NA	NA	4/180	P40828
				Silver-ICP	NA	NA	02/07/98 03:12P	NA	NA	4/180	P40828
				Arsenic-GFAA	NA	NA	02/09/98 03:35P	NA	NA	6/180	P40837
				Selenium-GFAA	NA	NA	02/06/98 09:22P	NA	NA	3/180	P40834
				Mercury	NA	NA	02/09/98 11:06A	NA	NA	5/28	P40851
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	6/180	P40844
				Volatiles	NA	NA	02/17/98 07:38P	NA	NA	14/14	P41047
				Lead-GFAA	NA	NA	02/10/98 02:20P	NA	NA	6/180	P40859
26668*13	S21 MW1	02/03/98 08:05A	02/04/98	Barium,total-ICP	NA	NA	02/12/98 05:54P	NA	NA	9/180	P40885
				Cadmium,total-ICP	NA	NA	02/12/98 05:54P	NA	NA	9/180	P40885
				Chromium,total-ICP	NA	NA	02/12/98 05:54P	NA	NA	9/180	P40885
				Lead,total-GFAA	NA	NA	02/16/98 06:31P	NA	NA	13/180	P40904
				Silver,total-ICP	NA	NA	02/12/98 05:54P	NA	NA	9/180	P40885
				Arsenic,total-GFAA	NA	NA	02/10/98 12:27P	NA	NA	7/180	P40861
				Selenium,total-GFAA	NA	NA	02/09/98 05:49P	NA	NA	6/180	P40848
				Mercury,total	NA	NA	02/11/98 06:46P	NA	NA	8/28	P40871
26668*14	S21 MW1	02/03/98 03:45P	02/04/98	HOLD SAMPLE	NA	NA	06:46P	NA	NA	/NA	

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

SAMPLE.....	SITE ID.....	ANALYTE.....	DIL....	BATCH
26668*1	S10B1-4'-5'	Lead	5	P40859
26668*1 DL	S10B1-4'-5'	Mercury	5	P40851
26668*2	S10B1-6'-7'	Lead	5	P40859
26668*3	S10B2-3'-5'	Lead	10	P40859
26668*4	S10B2 5'-6'	Lead	5	P40859
26668*5	S10B4 3'-5'	Lead	10	P40859
26668*6	S26B1 2'-3'	Lead	5	P40859
26668*7	S26B1 7'-9'	Lead	5	P40859
26668*8	S26B1 10'-11'	Lead	2	P40859
26668*9	S26B2 3'-4'	Lead	5	P40859
26668*10	S26B2 7'-8'	Lead	2	P40859
26668*11	S26B3 2'-3'	Lead	10	P40859
26668*12	S26B3 9'-11'	Lead	5	P40859
26668*13	S21 MW1	Lead,total	5	P40904

QUALITY CONTROL SUMMARY REPORTS BY ANALYTICAL BATCH

KATALYST BATCH : P40828
ANALYSIS : SW6010

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : ICP UPLOAD

REPORT DATE/TIME : 03/09/98 12:08
ANALYSIS DATE/TIME : 02/07/98
EXTRACT DATE : 02/04/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26668	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA'26668*1	S10B1-4'-5'	02/06/98	02:03PM
DA'26668*2	S10B1-6'-7'	02/06/98	02:07PM
DA'26668*3	S10B2-3'-5'	02/06/98	02:34PM
DA'26668*4	S10B2 5'-6'	02/06/98	02:38PM
DA'26668*5	S10B4 3'-5'	02/06/98	02:41PM
DA'26668*6	S26B1 2'-3'	02/06/98	02:44PM
DA'26668*7	S26B1 7'-9'	02/06/98	02:48PM
DA'26668*8	S26B1 10'-11'	02/06/98	02:51PM
DA'26668*9	S26B2 3'-4'	02/06/98	02:55PM
DA'26668*10	S26B2 7'-8'	02/06/98	02:58PM
DA'26668*11	S26B3 2'-3'	02/06/98	03:02PM
DA'26668*12	S26B3 9'-11'	02/06/98	03:12PM

KATALYST BATCH : P40828

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/07/98	CCB*980207*1	1008*6010/3050	Barium	MG/KG-	0.0008
02/07/98	CCB*980207*1	1028*6010/3050	Cadmium	MG/KG-	0.0006
02/07/98	CCB*980207*1	1029*6010/3050	Chromium	MG/KG-	0.0001
02/07/98	CCB*980207*1	1052*6010/3050	Lead	MG/KG-	0.003
02/07/98	CCB*980207*1	1078*6010/3050	Silver	MG/KG-	ND
02/07/98	CCB*980207*2	1008*6010/3050	Barium	MG/KG-	0.0008
02/07/98	CCB*980207*2	1028*6010/3050	Cadmium	MG/KG-	0.0009
02/07/98	CCB*980207*2	1029*6010/3050	Chromium	MG/KG-	ND
02/07/98	CCB*980207*2	1052*6010/3050	Lead	MG/KG-	ND
02/07/98	CCB*980207*2	1078*6010/3050	Silver	MG/KG-	ND
02/07/98	CCB*980207*3	1008*6010/3050	Barium	MG/KG-	0.0008
02/07/98	CCB*980207*3	1028*6010/3050	Cadmium	MG/KG-	0.0007
02/07/98	CCB*980207*3	1029*6010/3050	Chromium	MG/KG-	ND
02/07/98	CCB*980207*3	1052*6010/3050	Lead	MG/KG-	ND
02/07/98	CCB*980207*3	1078*6010/3050	Silver	MG/KG-	ND
02/07/98	CCB*980207*4	1008*6010/3050	Barium	MG/KG-	0.0008
02/07/98	CCB*980207*4	1028*6010/3050	Cadmium	MG/KG-	0.002
02/07/98	CCB*980207*4	1029*6010/3050	Chromium	MG/KG-	ND
02/07/98	CCB*980207*4	1052*6010/3050	Lead	MG/KG-	ND
02/07/98	CCB*980207*4	1078*6010/3050	Silver	MG/KG-	ND
02/07/98	CCB*980207*5	1008*6010/3050	Barium	MG/KG-	0.0008
02/07/98	CCB*980207*5	1028*6010/3050	Cadmium	MG/KG-	0.002
02/07/98	CCB*980207*5	1029*6010/3050	Chromium	MG/KG-	ND
02/07/98	CCB*980207*5	1052*6010/3050	Lead	MG/KG-	ND
02/07/98	CCB*980207*5	1078*6010/3050	Silver	MG/KG-	ND
02/07/98	CCB*980207*6	1008*6010/3050	Barium	MG/KG-	0.005
02/07/98	CCB*980207*6	1028*6010/3050	Cadmium	MG/KG-	0.001
02/07/98	CCB*980207*6	1029*6010/3050	Chromium	MG/KG-	ND
02/07/98	CCB*980207*6	1052*6010/3050	Lead	MG/KG-	ND
02/07/98	CCB*980207*6	1078*6010/3050	Silver	MG/KG-	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/07/98	CCV*980207*1	1008*6010/3050	Barium	MG/KG-	4.00	3.83	95.8	90-110
02/07/98	CCV*980207*1	1028*6010/3050	Cadmium	MG/KG-	4.00	3.83	95.8	90-110
02/07/98	CCV*980207*1	1029*6010/3050	Chromium	MG/KG-	4.00	3.82	95.5	90-110
02/07/98	CCV*980207*1	1052*6010/3050	Lead	MG/KG-	4.00	3.72	93.0	90-110
02/07/98	CCV*980207*1	1078*6010/3050	Silver	MG/KG-	0.400	0.371	92.8	90-110
02/07/98	CCV*980207*2	1008*6010/3050	Barium	MG/KG-	4.00	3.79	94.8	90-110
02/07/98	CCV*980207*2	1028*6010/3050	Cadmium	MG/KG-	4.00	3.84	96.0	90-110
02/07/98	CCV*980207*2	1029*6010/3050	Chromium	MG/KG-	4.00	3.81	95.3	90-110
02/07/98	CCV*980207*2	1052*6010/3050	Lead	MG/KG-	4.00	3.74	93.5	90-110
02/07/98	CCV*980207*2	1078*6010/3050	Silver	MG/KG-	0.400	0.368	92.0	90-110
02/07/98	CCV*980207*3	1008*6010/3050	Barium	MG/KG-	4.00	3.83	95.8	90-110
02/07/98	CCV*980207*3	1028*6010/3050	Cadmium	MG/KG-	4.00	3.90	97.5	90-110
02/07/98	CCV*980207*3	1029*6010/3050	Chromium	MG/KG-	4.00	3.87	96.8	90-110
02/07/98	CCV*980207*3	1052*6010/3050	Lead	MG/KG-	4.00	3.79	94.8	90-110
02/07/98	CCV*980207*3	1078*6010/3050	Silver	MG/KG-	0.400	0.371	92.8	90-110
02/07/98	CCV*980207*4	1008*6010/3050	Barium	MG/KG-	4.00	3.80	95.0	90-110
02/07/98	CCV*980207*4	1028*6010/3050	Cadmium	MG/KG-	4.00	3.88	97.0	90-110
02/07/98	CCV*980207*4	1029*6010/3050	Chromium	MG/KG-	4.00	3.84	96.0	90-110
02/07/98	CCV*980207*4	1052*6010/3050	Lead	MG/KG-	4.00	3.75	93.8	90-110
02/07/98	CCV*980207*4	1078*6010/3050	Silver	MG/KG-	0.400	0.368	92.0	90-110
02/07/98	CCV*980207*5	1008*6010/3050	Barium	MG/KG-	4.00	3.76	94.0	90-110
02/07/98	CCV*980207*5	1028*6010/3050	Cadmium	MG/KG-	4.00	3.85	96.3	90-110
02/07/98	CCV*980207*5	1029*6010/3050	Chromium	MG/KG-	4.00	3.81	95.3	90-110
02/07/98	CCV*980207*5	1052*6010/3050	Lead	MG/KG-	4.00	3.76	94.0	90-110
02/07/98	CCV*980207*5	1078*6010/3050	Silver	MG/KG-	0.400	0.368	92.0	90-110
02/07/98	CCV*980207*6	1008*6010/3050	Barium	MG/KG-	4.00	3.79	94.8	90-110
02/07/98	CCV*980207*6	1028*6010/3050	Cadmium	MG/KG-	4.00	3.88	97.0	90-110
02/07/98	CCV*980207*6	1029*6010/3050	Chromium	MG/KG-	4.00	3.82	95.5	90-110
02/07/98	CCV*980207*6	1052*6010/3050	Lead	MG/KG-	4.00	3.76	94.0	90-110
02/07/98	CCV*980207*6	1078*6010/3050	Silver	MG/KG-	0.400	0.368	92.0	90-110
02/07/98	CCV*980207*7	1008*6010/3050	Barium	MG/KG-	4.00	3.73	93.3	90-110
02/07/98	CCV*980207*7	1028*6010/3050	Cadmium	MG/KG-	4.00	3.86	96.5	90-110
02/07/98	CCV*980207*7	1029*6010/3050	Chromium	MG/KG-	4.00	3.81	95.3	90-110
02/07/98	CCV*980207*7	1052*6010/3050	Lead	MG/KG-	4.00	3.75	93.8	90-110
02/07/98	CCV*980207*7	1078*6010/3050	Silver	MG/KG-	0.400	0.367	91.8	90-110

KATALYST BATCH : P40828

Interference Check Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/07/98	ICS*AB*1	1008*6010/3050	Barium	MG/KG-	0.500	0.461	92.2	80-120
02/07/98	ICS*AB*1	1028*6010/3050	Cadmium	MG/KG-	1.00	0.857	85.7	80-120
02/07/98	ICS*AB*1	1029*6010/3050	Chromium	MG/KG-	0.500	0.448	89.6	80-120
02/07/98	ICS*AB*1	1052*6010/3050	Lead	MG/KG-	1.00	0.851	85.1	80-120
02/07/98	ICS*AB*1	1078*6010/3050	Silver	MG/KG-	1.00	0.925	92.5	80-120
02/07/98	ICS*AB*2	1008*6010/3050	Barium	MG/KG-	0.500	0.456	91.2	80-120
02/07/98	ICS*AB*2	1028*6010/3050	Cadmium	MG/KG-	1.00	0.863	86.3	80-120
02/07/98	ICS*AB*2	1029*6010/3050	Chromium	MG/KG-	0.500	0.452	90.4	80-120
02/07/98	ICS*AB*2	1052*6010/3050	Lead	MG/KG-	1.00	0.838	83.8	80-120
02/07/98	ICS*AB*2	1078*6010/3050	Silver	MG/KG-	1.00	0.914	91.4	80-120
02/07/98	ICS*AB*3	1008*6010/3050	Barium	MG/KG-	0.500	0.450	90.0	80-120
02/07/98	ICS*AB*3	1028*6010/3050	Cadmium	MG/KG-	1.00	0.864	86.4	80-120
02/07/98	ICS*AB*3	1029*6010/3050	Chromium	MG/KG-	0.500	0.447	89.4	80-120
02/07/98	ICS*AB*3	1052*6010/3050	Lead	MG/KG-	1.00	0.877	87.7	80-120
02/07/98	ICS*AB*3	1078*6010/3050	Silver	MG/KG-	1.00	0.907	90.7	80-120

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/07/98	ICV*980207*1	1008*6010/3050	Barium	MG/KG-	6.00	5.86	97.7	90-110
02/07/98	ICV*980207*1	1028*6010/3050	Cadmium	MG/KG-	6.00	5.82	97.0	90-110
02/07/98	ICV*980207*1	1029*6010/3050	Chromium	MG/KG-	6.00	5.82	97.0	90-110
02/07/98	ICV*980207*1	1052*6010/3050	Lead	MG/KG-	6.00	5.68	94.7	90-110
02/07/98	ICV*980207*1	1078*6010/3050	Silver	MG/KG-	0.600	0.571	95.2	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/07/98	LCS*98MP27046*1	1008*6010/3050	Barium	MG/KG-	500	447	89.4	80-120
02/07/98	LCS*98MP27046*1	1028*6010/3050	Cadmium	MG/KG-	500	445	89.0	80-120
02/07/98	LCS*98MP27046*1	1029*6010/3050	Chromium	MG/KG-	500	446	89.2	80-120
02/07/98	LCS*98MP27046*1	1052*6010/3050	Lead	MG/KG-	500	434	86.8	80-120
02/07/98	LCS*98MP27046*1	1078*6010/3050	Silver	MG/KG-	50.0	43.1	86.2	80-120
02/07/98	LCS*98MP27055*1	1008*6010/3050	Barium	MG/KG-	500	420	84.0	80-120
02/07/98	LCS*98MP27055*1	1028*6010/3050	Cadmium	MG/KG-	500	425	85.0	80-120
02/07/98	LCS*98MP27055*1	1029*6010/3050	Chromium	MG/KG-	500	420	84.0	80-120
02/07/98	LCS*98MP27055*1	1052*6010/3050	Lead	MG/KG-	500	413	82.6	80-120
02/07/98	LCS*98MP27055*1	1078*6010/3050	Silver	MG/KG-	50.0	41.2	82.4	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/07/98	MB*98MP27046*1	1008*6010/3050	Barium	MG/KG-	0.080	1.00
02/07/98	MB*98MP27046*1	1028*6010/3050	Cadmium	MG/KG-	0.080	0.500
02/07/98	MB*98MP27046*1	1029*6010/3050	Chromium	MG/KG-	0.203	1.00
02/07/98	MB*98MP27046*1	1052*6010/3050	Lead	MG/KG-	0.159	5.00
02/07/98	MB*98MP27046*1	1078*6010/3050	Silver	MG/KG-	0.161	2.00
02/07/98	MB*98MP27055*1	1008*6010/3050	Barium	MG/KG-	0.080	1.00
02/07/98	MB*98MP27055*1	1028*6010/3050	Cadmium	MG/KG-	0.020	0.500
02/07/98	MB*98MP27055*1	1029*6010/3050	Chromium	MG/KG-	ND	1.00
02/07/98	MB*98MP27055*1	1052*6010/3050	Lead	MG/KG-	ND	5.00
02/07/98	MB*98MP27055*1	1078*6010/3050	Silver	MG/KG-	ND	2.00

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/07/98	RP*26653*11	1008*6010/3050	Barium	MG/KG-	137	143	4.30		20
02/07/98	**RP*26653*11**	**1028*6010/3050**	**Cadmium**	**MG/KG-**	**0.644**	**0.962**	**39.6**		**20**
02/07/98	RP*26653*11	1029*6010/3050	Chromium	MG/KG-	15.2	15.8	3.90		20
02/07/98	RP*26653*11	1052*6010/3050	Lead	MG/KG-	12.0	13.3	10.3		20
02/07/98	RP*26653*11	1078*6010/3050	Silver	MG/KG-	<2.54	<2.56			20
02/07/98	RP*26668*2	1008*6010/3050	Barium	MG/KG-	92.6	102	9.70		20
02/07/98	RP*26668*2	1028*6010/3050	Cadmium	MG/KG-	<0.633	<0.639			20
02/07/98	RP*26668*2	1029*6010/3050	Chromium	MG/KG-	14.9	15.3	2.60		20
02/07/98	RP*26668*2	1052*6010/3050	Lead	MG/KG-	9.85	9.69	1.60		20
02/07/98	RP*26668*2	1078*6010/3050	Silver	MG/KG-	<2.53	<2.56			20

KATALYST BATCH : P40828

mple Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/07/98	SPM1*26653*11	1008	Barium	MG/KG-	137	642	502	78.2	75-125		
02/07/98	SPM1*26653*11	1028	Cadmium	MG/KG-	0.644	642	490	76.3	75-125		
02/07/98	SPM1*26653*11	1029	Chromium	MG/KG-	15.2	642	481	74.9	75-125		
02/07/98	SPM1*26653*11	1052	Lead	MG/KG-	12.0	642	472	73.5	75-125		
02/07/98	SPM1*26653*11	1078	Silver	MG/KG-	0.310	64.2	49.8	77.6	54-125		
02/07/98	SPM2*26653*11	1008	Barium	MG/KG-	137	644	577	89.6	75-125	13.6	20
02/07/98	SPM2*26653*11	1028	Cadmium	MG/KG-	0.644	644	546	84.8	75-125	10.6	20
02/07/98	SPM2*26653*11	1029	Chromium	MG/KG-	15.2	644	545	84.6	75-125	12.2	20
02/07/98	SPM2*26653*11	1052	Lead	MG/KG-	12.0	644	529	82.1	75-125	11.1	35
02/07/98	SPM2*26653*11	1078	Silver	MG/KG-	0.310	64.4	53.8	83.5	54-125	7.50	20
02/07/98	SPM1*26668*2	1008	Barium	MG/KG-	92.6	634	550	86.8	75-125		
02/07/98	SPM1*26668*2	1028	Cadmium	MG/KG-	0.136	634	513	80.9	75-125		
02/07/98	SPM1*26668*2	1029	Chromium	MG/KG-	14.9	634	515	81.2	75-125		
02/07/98	SPM1*26668*2	1052	Lead	MG/KG-	9.85	634	506	79.8	75-125		
02/07/98	SPM1*26668*2	1078	Silver	MG/KG-	0.051	63.4	50.7	80.0	54-125		
02/07/98	SPM2*26668*2	1008	Barium	MG/KG-	92.6	629	575	91.4	75-125	5.30	20
02/07/98	SPM2*26668*2	1028	Cadmium	MG/KG-	0.136	629	520	82.7	75-125	2.10	20
02/07/98	SPM2*26668*2	1029	Chromium	MG/KG-	14.9	629	525	83.5	75-125	2.80	20
02/07/98	SPM2*26668*2	1052	Lead	MG/KG-	9.85	629	510	81.1	75-125	1.60	35
02/07/98	SPM2*26668*2	1078	Silver	MG/KG-	0.051	62.9	50.9	80.9	54-125	1.10	20

ike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/07/98	SPX*26653*11	1008*6010/3050	Barium	MG/KG-	635	594	93.5	75-125
02/07/98	SPX*26653*11	1028*6010/3050	Cadmium	MG/KG-	635	589	92.8	75-125
02/07/98	SPX*26653*11	1029*6010/3050	Chromium	MG/KG-	635	590	92.9	75-125
02/07/98	SPX*26653*11	1052*6010/3050	Lead	MG/KG-	635	574	90.4	75-125
02/07/98	SPX*26653*11	1078*6010/3050	Silver	MG/KG-	63.5	57.3	90.2	75-125
02/07/98	SPX*26668*2	1008*6010/3050	Barium	MG/KG-	633	567	89.6	75-125
02/07/98	SPX*26668*2	1028*6010/3050	Cadmium	MG/KG-	633	569	89.9	75-125
02/07/98	SPX*26668*2	1029*6010/3050	Chromium	MG/KG-	633	572	90.4	75-125
02/07/98	SPX*26668*2	1052*6010/3050	Lead	MG/KG-	633	562	88.8	75-125
02/07/98	SPX*26668*2	1078*6010/3050-	Silver	MG/KG-	63.3	55.9	88.3	75-125

KATALYST BATCH : P40828

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40828 Analysis Date: 02/07/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCB present?	X		
CCB within acceptance criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICS present?	X		
ICS within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?		X	1028*6010/3050
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	1029*6010/3050 1052*6010/3050
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X		
Analytical spike present?	X		
Analytical spike within acceptance criteria?	X		

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40837
ALYSIS : SW7060

QC TYPE : FDER/SW
ANALYST : JON BUERCK
TRACTOR : TOM FERRELL
TA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 12:08
ANALYSIS DATE/TIME : 02/09/98
EXTRACT DATE : 02/06/98

STATUS : FINAL

THOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
6668	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

MPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA'26668*1	S10B1-4'-5'	02/09/98	10:47AM
A'26668*2	S10B1-6'-7'	02/09/98	10:59AM
A'26668*3	S10B2-3'-5'	02/09/98	11:39AM
A'26668*4	S10B2 5'-6'	02/09/98	11:51AM
DA'26668*5	S10B4 3'-5'	02/09/98	12:02PM
A'26668*6	S26B1 2'-3'	02/09/98	02:14PM
A'26668*7	S26B1 7'-9'	02/09/98	02:25PM
A'26668*8	S26B1 10'-11'	02/09/98	02:37PM
DA'26668*9	S26B2 3'-4'	02/09/98	02:49PM
DA'26668*10	S26B2 7'-8'	02/09/98	03:12PM
A'26668*11	S26B3 2'-3'	02/09/98	03:24PM
A'26668*12	S26B3 9'-11'	02/09/98	03:35PM

KATALYST BATCH : P40837

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40837 Analysis Date: 02/09/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No		
Are ALL units documented in batch?	X			
Analysis holding time within criteria?	X			
CCB present?	X			
CCB within acceptance criteria?	X			
CCV present?	X			
CCV within acceptance criteria?	X			
ICV present?	X			
ICV within acceptance criteria?	X			
LCS present?	X			
LCS within acceptance criteria?	X			
Method blank present?	X			
Method blank within acceptance criteria?	X			
Sample replicate present?	X			
Sample replicate within acceptance criteria?		X	1003*7060/3050	
Sample matrix spike present?	X			
Sample matrix spike within acceptance criteria?		X	1003*7060/3050	SPX*26668*9 Exceeds criteria. (Recovery Limit [illegible]0
Sample matrix spike duplicate present?	X			
Sample matrix spike duplicate within acceptance criteria?		X	1003*7060/3050	SPX*26668*9 Exceeds criteria. (Recovery Limit [illegible]0
Analytical spike present?	X			
Analytical spike within acceptance criteria?		X	1003*7060/3050	

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40837

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
[redacted]/09/98	CCB*980209AS*1	1003*7060/3050	Arsenic	MG/KG-	0.0004
[redacted]/09/98	CCB*980209AS*2	1003*7060/3050	Arsenic	MG/KG-	0.00003
02/09/98	CCB*980209AS*3	1003*7060/3050	Arsenic	MG/KG-	0.0003
02/09/98	CCB*980209AS*4	1003*7060/3050	Arsenic	MG/KG-	ND
[redacted]/09/98	CCB*980209AS*5	1003*7060/3050	Arsenic	MG/KG-	0.0008

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
[redacted]/09/98	CCV*980209AS*1	1003*7060/3050	Arsenic	MG/KG-	0.020	0.021	105	90-110
[redacted]/09/98	CCV*980209AS*2	1003*7060/3050	Arsenic	MG/KG-	0.020	0.022	110	90-110
02/09/98	CCV*980209AS*3	1003*7060/3050	Arsenic	MG/KG-	0.020	0.021	105	90-110
02/09/98	CCV*980209AS*4	1003*7060/3050	Arsenic	MG/KG-	0.020	0.021	105	90-110
[redacted]/09/98	CCV*980209AS*5	1003*7060/3050	Arsenic	MG/KG-	0.020	0.021	105	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
[redacted]/09/98	ICV*980209AS*1	1003*7060/3050	Arsenic	MG/KG-	0.030	0.031	103	90-110
[redacted]/09/98	ICV*980209AS*2	1003*7060/3050	Arsenic	MG/KG-	0.030	0.031	103	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
[redacted]/09/98	LCS*98MP27054*1	1003*7060/3050	Arsenic	MG/KG-	2.00	2.13	106.5	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/09/98	MB*98MP27054*1	1003*7060/3050	Arsenic	MG/KG-	0.003	5.00

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/09/98	**RP*26668*2**	**1003*7060/3050**	**Arsenic**	**MG/KG-**	**11.0**	**7.72**	**35.0**		**20**

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/09/98	**SPM1*26668*2**	**1003**	**Arsenic**	**MG/KG-**	**11.0**	**2.52**	**4.90**	**194.4**	**75-125**		
[redacted]/09/98	**SPM2*26668*2**	**1003**	**Arsenic**	**MG/KG-**	**11.0**	**2.52**	**0.200**	**7.94**	**75-125**	**184**	**20**

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
[redacted]/09/98	SPX*26668*1	1003*7060/3050	Arsenic	MG/KG-	12.3	13.3	108.1	85-115
[redacted]/09/98	SPX*26668*2	1003*7060/3050	Arsenic	MG/KG-	25.6	25.6	100.0	85-115
02/09/98	SPX*26668*3	1003*7060/3050	Arsenic	MG/KG-	24.6	25.1	102.0	85-115
02/09/98	SPX*26668*4	1003*7060/3050	Arsenic	MG/KG-	25.6	26.3	102.7	85-115
[redacted]/09/98	SPX*26668*5	1003*7060/3050	Arsenic	MG/KG-	5.03	5.28	105.0	85-115
[redacted]/09/98	SPX*26668*6	1003*7060/3050	Arsenic	MG/KG-	12.5	13.2	105.6	85-115
[redacted]/09/98	SPX*26668*7	1003*7060/3050	Arsenic	MG/KG-	12.8	13.9	108.6	85-115
02/09/98	SPX*26668*8	1003*7060/3050	Arsenic	MG/KG-	5.15	5.41	105.0	85-115
02/09/98	**SPX*26668*9**	**1003*7060/3050**	**Arsenic**	**MG/KG-**	**12.6**	**14.7**	**116.7**	**85-115**
[redacted]/09/98	SPX*26668*10	1003*7060/3050	Arsenic	MG/KG-	2.56	2.51	98.0	85-115
[redacted]/09/98	SPX*26668*11	1003*7060/3050	Arsenic	MG/KG-	12.6	13.8	109.5	85-115
02/09/98	SPX*26668*12	1003*7060/3050	Arsenic	MG/KG-	25.5	28.0	109.8	85-115

KATALYST BATCH : P40834
ANALYSIS : SW7740

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 12:09
ANALYSIS DATE/TIME : 02/09/98
EXTRACT DATE : 02/06/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26668	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26668*1	S10B1-4'-5'	02/06/98	06:12PM
DA*26668*2	S10B1-6'-7'	02/06/98	06:24PM
DA*26668*3	S10B2-3'-5'	02/06/98	07:07PM
DA*26668*4	S10B2 5'-6'	02/06/98	07:20PM
DA*26668*5	S10B4 3'-5'	02/06/98	07:32PM
DA*26668*6	S26B1 2'-3'	02/06/98	07:56PM
DA*26668*7	S26B1 7'-9'	02/06/98	08:08PM
DA*26668*8	S26B1 10'-11'	02/06/98	08:20PM
DA*26668*9	S26B2 3'-4'	02/06/98	08:32PM
DA*26668*10	S26B2 7'-8'	02/06/98	08:45PM
DA*26668*11	S26B3 2'-3'	02/06/98	09:10PM
DA*26668*12	S26B3 9'-11'	02/06/98	09:22PM

KATALYST BATCH : P40834

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/06/98	CCB*980206SE*1	1148*7740/3050	Selenium	MG/KG-	ND
02/06/98	CCB*980206SE*2	1148*7740/3050	Selenium	MG/KG-	ND
02/06/98	CCB*980206SE*3	1148*7740/3050	Selenium	MG/KG-	ND
02/06/98	CCB*980206SE*4	1148*7740/3050	Selenium	MG/KG-	ND
02/09/98	CCB*980209SE*1	1148*7740/3050	Selenium	MG/KG-	0.0008
02/09/98	CCB*980209SE*2	1148*7740/3050	Selenium	MG/KG-	ND
02/09/98	CCB*980209SE*3	1148*7740/3050	Selenium	MG/KG-	ND
02/09/98	CCB*980209SE*4	1148*7740/3050	Selenium	MG/KG-	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/06/98	CCV*980206SE*1	1148*7740/3050	Selenium	MG/KG-	0.020	0.020	100.0	90-110
02/06/98	CCV*980206SE*2	1148*7740/3050	Selenium	MG/KG-	0.020	0.019	95.0	90-110
02/06/98	CCV*980206SE*3	1148*7740/3050	Selenium	MG/KG-	0.020	0.019	95.0	90-110
02/06/98	CCV*980206SE*4	1148*7740/3050	Selenium	MG/KG-	0.020	0.019	95.0	90-110
02/09/98	CCV*980209SE*1	1148*7740/3050	Selenium	MG/KG-	0.020	0.021	105	90-110
02/09/98	CCV*980209SE*2	1148*7740/3050	Selenium	MG/KG-	0.020	0.020	100.0	90-110
02/09/98	CCV*980209SE*3	1148*7740/3050	Selenium	MG/KG-	0.020	0.020	100.0	90-110
02/09/98	CCV*980209SE*4	1148*7740/3050	Selenium	MG/KG-	0.020	0.020	100.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/06/98	ICV*980206SE*1	1148*7740/3050	Selenium	MG/KG-	0.030	0.030	100.0	90-110
02/09/98	ICV*980209SE*1	1148*7740/3050	Selenium	MG/KG-	0.030	0.032	107	90-110
02/09/98	ICV*980209SE*2	1148*7740/3050	Selenium	MG/KG-	0.030	0.031	103	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/06/98	LCS*98MP27054*1	1148*7740/3050	Selenium	MG/KG-	2.00	2.06	103.0	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/06/98	MB*98MP27054*1	1148*7740/3050	Selenium	MG/KG-	ND	0.500

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/06/98	RP*26668*2	1148*7740/3050	Selenium	MG/KG-	0.957	1.02	6.40		20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/06/98	**SPM1*26668*2**	**1148**	**Selenium**	**MG/KG-**	**0.957**	**2.52**	**1.87**	**74.2**	**75-125**		
02/06/98	SPM2*26668*2	1148	Selenium	MG/KG-	0.957	2.52	1.95	77.4	75-125	4.30	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/06/98	**SPX*26668*1**	**1148*7740/3050**	**Selenium**	**MG/KG-**	**2.47**	**1.87**	**75.7**	**85-115**
02/06/98	SPX*26668*2	1148*7740/3050	Selenium	MG/KG-	2.56	2.30	89.8	85-115
02/06/98	**SPX*26668*3**	**1148*7740/3050**	**Selenium**	**MG/KG-**	**2.46**	**1.89**	**76.8**	**85-115**
02/06/98	SPX*26668*4	1148*7740/3050-	Selenium	MG/KG-	2.56	2.47	96.5	85-115
02/06/98	**SPX*26668*5**	**1148*7740/3050**	**Selenium**	**MG/KG-**	**2.52**	**1.98**	**78.6**	**85-115**
02/06/98	**SPX*26668*6**	**1148*7740/3050**	**Selenium**	**MG/KG-**	**2.50**	**3.21**	**128.4**	**85-115**
02/06/98	**SPX*26668*7**	**1148*7740/3050**	**Selenium**	**MG/KG-**	**2.56**	**2.03**	**79.3**	**85-115**
02/06/98	**SPX*26668*8**	**1148*7740/3050**	**Selenium**	**MG/KG-**	**2.58**	**2.03**	**78.7**	**85-115**
02/06/98	**SPX*26668*9**	**1148*7740/3050**	**Selenium**	**MG/KG-**	**2.51**	**2.99**	**119.1**	**85-115**
02/06/98	SPX*26668*10	1148*7740/3050	Selenium	MG/KG-	2.56	2.56	100.0	85-115
02/06/98	**SPX*26668*11**	**1148*7740/3050**	**Selenium**	**MG/KG-**	**2.53**	**3.20**	**126.5**	**85-115**
02/06/98	SPX*26668*12	1148*7740/3050	Selenium	MG/KG-	2.55	2.34	91.8	85-115

KATALYST BATCH : P40834

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40834 Analysis Date: 02/09/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCB present?	X		
CCB within acceptance criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	1148*7740/3050 SPX*26668*1 Exceeds criteria. (Recovery Limit
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X		
Analytical spike present?	X		
Analytical spike within acceptance criteria?		X	1148*7740/3050

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40851
ANALYSIS : SW7471

QC TYPE : FDER/SW
ANALYST : TODD PETERSON
EXTRACTOR : TODD PETERSON
DATA ENTRY : TODD PETERSON

REPORT DATE/TIME : 03/09/98 12:09
ANALYSIS DATE/TIME : 02/09/98
EXTRACT DATE : 02/09/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
7471 HG

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26668	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26668*1	S10B1-4'-5'	02/09/98	10:29AM
DA*26668*2	S10B1-6'-7'	02/09/98	10:32AM
DA*26668*3	S10B2-3'-5'	02/09/98	10:41AM
DA*26668*4	S10B2 5'-6'	02/09/98	10:48AM
DA*26668*5	S10B4 3'-5'	02/09/98	10:50AM
DA*26668*6	S26B1 2'-3'	02/09/98	10:53AM
DA*26668*7	S26B1 7'-9'	02/09/98	10:55AM
DA*26668*8	S26B1 10'-11'	02/09/98	10:57AM
DA*26668*9	S26B2 3'-4'	02/09/98	10:59AM
DA*26668*10	S26B2 7'-8'	02/09/98	11:02AM
DA*26668*11	S26B3 2'-3'	02/09/98	11:04AM
DA*26668*12	S26B3 9'-11'	02/09/98	11:06AM
DA*26668*1*D	S10B1-4'-5'	02/09/98	11:20AM

KATALYST BATCH : P40851

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/09/98	CCB*980209*1	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209*2	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209*3	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209*9	71921*7471	Mercury	MG/KG-	0.00002
02/09/98	CCB*980209*10	71921*7471	Mercury	MG/KG-	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	CCV*980209*1	71921*7471	Mercury	MG/KG-	0.0050	0.0051	102.0	90-110
02/09/98	CCV*980209*2	71921*7471	Mercury	MG/KG-	0.0050	0.0050	100.00	90-110
02/09/98	CCV*980209*3	71921*7471	Mercury	MG/KG-	0.0050	0.0050	100.00	90-110
02/09/98	CCV*980209*9	71921*7471	Mercury	MG/KG-	0.0050	0.0047	94.00	90-110
02/09/98	CCV*980209*10	71921*7471	Mercury	MG/KG-	0.0050	0.0047	94.00	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	ICV*980209*1	71921*7471	Mercury	MG/KG-	0.0025	0.00275	110	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	LCS*MP27059*1	71921*7471	Mercury	MG/KG-	0.1667	0.1883	112.96	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/09/98	MB*MP27059*1	71921*7471	Mercury	MG/KG-	ND	0.0200

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/09/98	RP*26668*2	71921*7471	Mercury	MG/KG-	0.0258	<0.0256	0.8000		20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/09/98	SPM1*26668*2	71921	Mercury	MG/KG-	0.0258	0.2134	0.2367	110.92	75-125		
02/09/98	SPM2*26668*2	71921	Mercury	MG/KG-	0.0258	0.2134	0.2410	112.93	75-125	1.800	20

KATALYST BATCH : P40851

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40851 Analysis Date: 02/09/98 Analyst: TODD PETERSON Report Date: 03/09/98

	Yes	No
re ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
CB present?	X	
CCB within acceptance criteria?	X	
CCV present?	X	
CV within acceptance criteria?	X	
ICV present?	X	
ICV within acceptance criteria?	X	
CS present?	X	
CS within acceptance criteria?	X	
Method blank present?	X	
ethod blank within acceptance criteria?	X	
Sample replicate present?	X	
Sample replicate within acceptance criteria?	X	
ample matrix spike present?	X	
ample matrix spike within acceptance criteria?	X	
Sample matrix spike duplicate present?	X	
ample matrix spike duplicate within acceptance criteria?	X	

ATCH OVERRIDE BY:

INALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40844
ANALYSIS : E160.3

QC TYPE : FDER/SW
ANALYST : Marcy Fritz
EXTRACTOR :
DATA ENTRY : SPREADSHEET UPLOAD

REPORT DATE/TIME : 03/09/98 12:09
ANALYSIS DATE/TIME : 02/09/98 14:45
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26668	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26668*1	S10B1-4'-5'		
DA*26668*2	S10B1-6'-7'		
DA*26668*3	S10B2-3'-5'		
DA*26668*4	S10B2 5'-6'		
DA*26668*5	S10B4 3'-5'		
DA*26668*6	S26B1 2'-3'		
DA*26668*7	S26B1 7'-9'		
DA*26668*8	S26B1 10'-11'		
DA*26668*9	S26B2 3'-4'		
DA*26668*10	S26B2 7'-8'		
DA*26668*11	S26B3 2'-3'		
DA*26668*12	S26B3 9'-11'		

KATALYST BATCH : P40844

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40844 Analysis Date: 02/09/98 Analyst: Marcy Fritz Report Date: 03/09/98

	Yes	No
Are ALL units documented in batch?	X	
Analysis holding time within criteria?	X	

BATCH OVERRIDE BY:

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40822
NALYSIS : SW8310

QC TYPE : FDER/SW
ANALYST :
EXTRACTOR :
ATA ENTRY :

REPORT DATE/TIME : 03/09/98 12:09
ANALYSIS DATE/TIME : 02/06/98
EXTRACT DATE :

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

ATCH NOTES
8310/SOIL

IELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
6668	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26668*1	S10B1-4'-5'	02/07/98	03:44AM
DA*26668*2	S10B1-6'-7'	02/07/98	04:40AM
DA*26668*3	S10B2-3'-5'	02/07/98	08:26AM
DA*26668*4	S10B2 5'-6'	02/07/98	09:22AM
DA*26668*5	S10B4 3'-5'	02/07/98	10:18AM

KATALYST BATCH : P40822

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/06/98	CCV*L30206*1	34445*8310/3550S	Naphthalene	UG/KG-	20.0	18.1	90.5	85-115
02/06/98	CCV*L30206*1	34203*8310/3550S	Acenaphthylene	UG/KG-	20.0	19.9	99.5	85-115
02/06/98	CCV*L30206*1	34208*8310/3550S	Acenaphthene	UG/KG-	20.0	19.2	96.0	85-115
02/06/98	CCV*L30206*1	34384*8310/3550S	Fluorene	UG/KG-	20.0	22.1	111	85-115
02/06/98	CCV*L30206*1	34464*8310/3550S	Phenanthrene	UG/KG-	1.00	0.98	98.0	85-115
02/06/98	CCV*L30206*1	34223*8310/3550S	Anthracene	UG/KG-	0.20	0.19	95.0	85-115
02/06/98	CCV*L30206*1	34379*8310/3550S	Fluoranthene	UG/KG-	1.00	0.98	98.0	85-115
02/06/98	CCV*L30206*1	34472*8310/3550S	Pyrene	UG/KG-	1.00	0.94	94.0	85-115
02/06/98	CCV*L30206*1	34529*8310/3550S	Benzo(a)anthracene	UG/KG-	1.00	0.96	96.0	85-115
02/06/98	CCV*L30206*1	34323*8310/3550S	Chrysene	UG/KG-	1.00	0.95	95.0	85-115
02/06/98	CCV*L30206*1	34233*8310/3550S	Benzo(b)fluoranthene	UG/KG-	1.00	0.97	97.0	85-115
02/06/98	CCV*L30206*1	34245*8310/3550S	Benzo(k)fluoranthene	UG/KG-	0.50	0.48	96.0	85-115
02/06/98	CCV*L30206*1	34250*8310/3550S	Benzo(a)pyrene	UG/KG-	1.00	1.12	112	85-115
02/06/98	CCV*L30206*1	34559*8310/3550S	Dibenz(a,h)anthracene	UG/KG-	1.00	1.03	103	85-115
02/06/98	CCV*L30206*1	34524*8310/3550S	Benzo(g,h,i)perylene	UG/KG-	1.00	0.90	90.0	85-115
02/06/98	CCV*L30206*1	34406*8310/3550S	Indeno(1,2,3-cd) pyrene	UG/KG-	1.00	0.93	93.0	85-115

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/07/98	LCS*3573*1	34445*8310/3550S	Naphthalene	UG/KG-	333	226	67.9	30-150
02/07/98	LCS*3573*1	34208*8310/3550S	Acenaphthene	UG/KG-	333	237	71.2	31-134
02/07/98	LCS*3573*1	34464*8310/3550S	Phenanthrene	UG/KG-	33.3	27.1	81.4	30-150
02/07/98	LCS*3573*1	34472*8310/3550S	Pyrene	UG/KG-	33.3	28.0	84.1	30-150
02/07/98	LCS*3573*1	34323*8310/3550S	Chrysene	UG/KG-	33.3	25.9	77.8	30-150
02/07/98	LCS*3573*1	34233*8310/3550S	Benzo(b)fluoranthene	UG/KG-	66.7	50.8	76.2	30-150

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/07/98	MB*3573*1	34445*8310/3550S	Naphthalene	UG/KG-	ND	333
02/07/98	MB*3573*1	34203*8310/3550S	Acenaphthylene	UG/KG-	ND	333
02/07/98	MB*3573*1	34208*8310/3550S	Acenaphthene	UG/KG-	ND	333
02/07/98	MB*3573*1	34384*8310/3550S	Fluorene	UG/KG-	1.75	66.7
02/07/98	MB*3573*1	34464*8310/3550S	Phenanthrene	UG/KG-	0.97	3.33
02/07/98	MB*3573*1	34223*8310/3550S	Anthracene	UG/KG-	0.05	3.33
02/07/98	MB*3573*1	34379*8310/3550S	Fluoranthene	UG/KG-	ND	3.33
02/07/98	MB*3573*1	34472*8310/3550S	Pyrene	UG/KG-	ND	3.33
02/07/98	MB*3573*1	34529*8310/3550S	Benzo(a)anthracene	UG/KG-	ND	3.33
02/07/98	MB*3573*1	34323*8310/3550S	Chrysene	UG/KG-	ND	3.33
02/07/98	MB*3573*1	34233*8310/3550S	Benzo(b)fluoranthene	UG/KG-	0.26	3.33
02/07/98	MB*3573*1	34245*8310/3550S	Benzo(k)fluoranthene	UG/KG-	0.13	3.33
02/07/98	MB*3573*1	34250*8310/3550S	Benzo(a)pyrene	UG/KG-	0.32	3.33
02/07/98	MB*3573*1	34559*8310/3550S	Dibenz(a,h)anthracene	UG/KG-	ND	3.33
02/07/98	MB*3573*1	34524*8310/3550S	Benzo(g,h,i)perylene	UG/KG-	0.45	3.33
02/07/98	MB*3573*1	34406*8310/3550S	Indeno(1,2,3-cd) pyrene	UG/KG-	ND	3.33

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/07/98	SPM1*26668*2	34445	Naphthalene	UG/KG-	0.0	427	292	68.4	30-150		
02/07/98	SPM1*26668*2	34208	Acenaphthene	UG/KG-	0.0	427	317	74.2	31-134		
02/07/98	SPM1*26668*2	34464	Phenanthrene	UG/KG-	8.29	42.6	28.1	66.0	30-150		
02/07/98	SPM1*26668*2	34472	Pyrene	UG/KG-	14.3	42.6	24.0	56.3	30-150		
02/07/98	SPM1*26668*2	34323	Chrysene	UG/KG-	6.36	42.6	27.5	64.6	30-150		
02/07/98	SPM1*26668*2	34233	Benzo(b)fluoranthene	UG/KG-	5.02	85.4	62.1	72.7	30-150		
02/07/98	SPM2*26668*2	34445	Naphthalene	UG/KG-	0.0	427	303	71.0	30-150	3.70	16
02/07/98	**SPM2*26668*2**	**34208**	**Acenaphthene**	**UG/KG-**	**0.0**	**427**	**407**	**95.3**	**31-134**	**25.0**	**15**
02/07/98	SPM2*26668*2	34464	Phenanthrene	UG/KG-	8.29	42.6	28.4	66.7	30-150	0.90	13
02/07/98	SPM2*26668*2	34472	Pyrene	UG/KG-	14.3	42.6	25.0	58.7	30-150	4.00	16
02/07/98	SPM2*26668*2	34323	Chrysene	UG/KG-	6.36	42.6	28.2	66.2	30-150	2.40	16
02/07/98	SPM2*26668*2	34233	Benzo(b)fluoranthene	UG/KG-	5.02	85.4	64.1	75.1	30-150	3.10	14

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/07/98	DA*26668*1	97990*SUR	TRIPHENYLENE	UG/KG-	200	189	94.5	31-174
02/07/98	DA*26668*2	97990*SUR	TRIPHENYLENE	UG/KG-	200	181	90.5	31-174
02/07/98	DA*26668*3	97990*SUR	TRIPHENYLENE	UG/KG-	200	197	98.5	31-174
02/07/98	DA*26668*4	97990*SUR	TRIPHENYLENE	UG/KG-	200	189	94.5	31-174
02/07/98	DA*26668*5	97990*SUR	TRIPHENYLENE	UG/KG-	200	180	90.0	31-174
02/07/98	SPM1*26668*2	97990*SUR	TRIPHENYLENE	UG/KG-	200	162	81.0	31-174
02/07/98	SPM2*26668*2	97990*SUR	TRIPHENYLENE	UG/KG-	200	155	77.5	31-174

KATALYST BATCH : P40822

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40822 Analysis Date: 02/06/98 Analyst: Report Date: 03/09/98

	Yes	No
All ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
Extraction holding time within criteria?	X	
Sample retention times within window?	X	
Sample relative retention times within window?	X	
CCV present?	X	
CCV within acceptance criteria?	X	
LCS present?	X	
LCS within acceptance criteria?	X	
Method blank present?	X	
Method blank within acceptance criteria?	X	
Sample matrix spike present?	X	
Sample matrix spike within acceptance criteria?	X	
Sample matrix spike duplicate present?	X	
Sample matrix spike duplicate within acceptance criteria?	X	
Surrogate present?	X	
Surrogate within acceptance criteria?	X	

BATCH OVERRIDE BY: TROY AVERY 1006

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P41047
ANALYSIS : 8240

QC TYPE : FDER/SW
ANALYST : TROY AVERY
EXTRACTOR :
DATA ENTRY : GCMS UPLOAD

REPORT DATE/TIME : 03/09/98 12:10
ANALYSIS DATE/TIME : 03/02/98
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
8240 SOILS

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26668	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA'26668*2	S10B1-6'-7'	02/16/98	07:39PM
DA'26668*3	S10B2-3'-5'	02/16/98	09:08PM
DA'26668*4	S10B2 5'-6'	02/16/98	09:37PM
DA'26668*5	S10B4 3'-5'	02/16/98	10:07PM
DA'26668*6	S26B1 2'-3'	02/16/98	10:36PM
DA'26668*7	S26B1 7'-9'	02/16/98	11:05PM
DA'26668*8	S26B1 10'-11'	02/16/98	11:34PM
DA'26668*9	S26B2 3'-4'	02/17/98	12:03AM
DA'26668*1	S10B1-4'-5'	02/17/98	03:11PM
DA'26668*10	S26B2 7'-8'	02/17/98	06:39PM
DA'26668*11	S26B3 2'-3'	02/17/98	07:08PM
DA'26668*12	S26B3 9'-11'	02/17/98	07:38PM

KATALYST BATCH : P41047

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	LCS*H021698*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	64.6	129.2	59-172
02/16/98	LCS*H021698*1	34237*8240/5030	Benzene	UG/KG-	50.0	63.9	127.8	66-142
02/16/98	LCS*H021698*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	54.7	109.4	62-137
02/16/98	LCS*H021698*1	34483*8240/5030	Toluene	UG/KG-	50.0	64.6	129.2	59-139
02/16/98	LCS*H021698*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	61.5	123.0	60-133
02/17/98	LCS*H021798*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	66.5	133.0	59-172
02/17/98	LCS*H021798*1	34237*8240/5030	Benzene	UG/KG-	50.0	60.0	120.0	66-142
02/17/98	LCS*H021798*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	50.7	101.4	62-137
02/17/98	LCS*H021798*1	34483*8240/5030	Toluene	UG/KG-	50.0	58.5	117.0	59-139
02/17/98	LCS*H021798*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	54.4	108.8	60-133
02/18/98	LCS*H021898*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	76.3	152.6	59-172
02/18/98	LCS*H021898*1	34237*8240/5030	Benzene	UG/KG-	50.0	65.1	130.2	66-142
02/18/98	LCS*H021898*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	55.0	110.0	62-137
02/18/98	LCS*H021898*1	34483*8240/5030	Toluene	UG/KG-	50.0	62.1	124.2	59-139
02/18/98	LCS*H021898*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	58.0	116.0	60-133
02/19/98	LCS*H021998*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	61.5	123.0	59-172
02/19/98	LCS*H021998*1	34237*8240/5030	Benzene	UG/KG-	50.0	57.4	114.8	66-142
02/19/98	LCS*H021998*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	51.2	102.4	62-137
02/19/98	LCS*H021998*1	34483*8240/5030	Toluene	UG/KG-	50.0	53.9	107.8	59-139
02/19/98	LCS*H021998*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	54.2	108.4	60-133
02/20/98	LCS*H022098*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	65.0	130.0	59-172
02/20/98	LCS*H022098*1	34237*8240/5030	Benzene	UG/KG-	50.0	56.3	112.6	66-142
02/20/98	LCS*H022098*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	47.9	95.8	62-137
02/20/98	LCS*H022098*1	34483*8240/5030	Toluene	UG/KG-	50.0	50.5	101.0	59-139
02/20/98	LCS*H022098*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	50.0	100.0	60-133
03/01/98	LCS*H030198*3	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	57.5	115.0	59-172
03/01/98	LCS*H030198*3	34237*8240/5030	Benzene	UG/KG-	50.0	54.3	108.6	66-142
03/01/98	LCS*H030198*3	34487*8240/5030	Trichloroethene	UG/KG-	50.0	54.3	108.6	62-137
03/01/98	LCS*H030198*3	34483*8240/5030	Toluene	UG/KG-	50.0	54.1	108.2	59-139
03/01/98	LCS*H030198*3	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	55.0	110.0	60-133
03/02/98	LCS*H030298*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	59.7	119.4	59-172
03/02/98	LCS*H030298*1	34237*8240/5030	Benzene	UG/KG-	50.0	56.1	112.2	66-142
03/02/98	LCS*H030298*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	57.1	114.2	62-137
03/02/98	LCS*H030298*1	34483*8240/5030	Toluene	UG/KG-	50.0	56.2	112.4	59-139
03/02/98	LCS*H030298*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	57.6	115.2	60-133

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/16/98	MB*H021698*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75059*8240/5030	Acetone	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34426*8240/5030	Methylene Chloride	UG/KG-	1.43	5.00
02/16/98	MB*H021698*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75078*8240/5030	2-Butanone	UG/KG-	2.28	10.00
02/16/98	MB*H021698*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34478*8240/5030	Tetrachloroethene	UG/KG-	0.57	5.00
02/16/98	MB*H021698*1	75166*8240/5030	2-Hexanone	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00

KATALYST BATCH : P41047

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/16/98	MB*H021698*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75059*8240/5030	Acetone	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34426*8240/5030	Methylene Chloride	UG/KG-	1.28	5.00
02/17/98	MB*H021798*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75078*8240/5030	2-Butanone	UG/KG-	4.00	10.00
02/17/98	MB*H021798*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34478*8240/5030	Tetrachloroethene	UG/KG-	0.67	5.00
02/17/98	MB*H021798*1	75166*8240/5030	2-Hexanone	UG/KG-	0.91	10.00
02/17/98	MB*H021798*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75059*8240/5030	Acetone	UG/KG-	5.77	10.00
02/18/98	MB*H021898*1	34426*8240/5030	Methylene Chloride	UG/KG-	0.53	5.00
02/18/98	MB*H021898*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75078*8240/5030	2-Butanone	UG/KG-	2.26	10.00
02/18/98	MB*H021898*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34478*8240/5030	Tetrachloroethene	UG/KG-	2.82	5.00
02/18/98	MB*H021898*1	75166*8240/5030	2-Hexanone	UG/KG-	0.89	10.00
02/18/98	MB*H021898*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/19/98	MB*H021998*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00

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KATALYST BATCH : P41047

[redacted]ethod Blank Sample Summary

[redacted]

[redacted]ATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/19/98	MB*H021998*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/19/98	MB*H021998*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
[redacted]2/19/98	MB*H021998*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
[redacted]2/19/98	MB*H021998*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	75059*8240/5030	Acetone	UG/KG-	3.47	10.00
02/19/98	MB*H021998*1	34426*8240/5030	Methylene Chloride	UG/KG-	ND	5.00
[redacted]2/19/98	MB*H021998*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
[redacted]2/19/98	MB*H021998*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
[redacted]2/19/98	MB*H021998*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	75078*8240/5030	2-Butanone	UG/KG-	2.42	10.00
[redacted]2/19/98	MB*H021998*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
[redacted]2/19/98	MB*H021998*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
[redacted]2/19/98	MB*H021998*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
[redacted]2/19/98	MB*H021998*1	34487*8240/5030	Trichloroethene	UG/KG-	0.52	5.00
[redacted]2/19/98	MB*H021998*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
[redacted]2/19/98	MB*H021998*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
[redacted]2/19/98	MB*H021998*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
[redacted]2/19/98	MB*H021998*1	34478*8240/5030	Tetrachloroethene	UG/KG-	ND	5.00
[redacted]2/19/98	MB*H021998*1	75166*8240/5030	2-Hexanone	UG/KG-	1.09	10.00
[redacted]2/19/98	MB*H021998*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
[redacted]2/19/98	MB*H021998*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
[redacted]2/19/98	MB*H021998*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
[redacted]2/20/98	MB*H022098*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
[redacted]2/20/98	MB*H022098*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
[redacted]2/20/98	MB*H022098*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/20/98	MB*H022098*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/20/98	MB*H022098*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
[redacted]2/20/98	MB*H022098*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
[redacted]2/20/98	MB*H022098*1	75059*8240/5030	Acetone	UG/KG-	3.35	10.00
02/20/98	MB*H022098*1	34426*8240/5030	Methylene Chloride	UG/KG-	0.65	5.00
02/20/98	MB*H022098*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
[redacted]2/20/98	MB*H022098*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
[redacted]2/20/98	MB*H022098*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
[redacted]2/20/98	MB*H022098*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	75078*8240/5030	2-Butanone	UG/KG-	3.88	10.00
02/20/98	MB*H022098*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
[redacted]2/20/98	MB*H022098*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
[redacted]2/20/98	MB*H022098*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
[redacted]2/20/98	MB*H022098*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
[redacted]2/20/98	MB*H022098*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
[redacted]2/20/98	MB*H022098*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
[redacted]2/20/98	MB*H022098*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
[redacted]2/20/98	MB*H022098*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34478*8240/5030	Tetrachloroethene	UG/KG-	0.95	5.00
[redacted]2/20/98	MB*H022098*1	75166*8240/5030	2-Hexanone	UG/KG-	1.36	10.00
[redacted]2/20/98	MB*H022098*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
[redacted]2/20/98	MB*H022098*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
[redacted]2/20/98	MB*H022098*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
[redacted]2/20/98	MB*H022098*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
03/01/98	MB*H030198*4	34421*8240/5030	Chloromethane	UG/KG-	ND	1250
[redacted]3/01/98	MB*H030198*4	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	1250
[redacted]3/01/98	MB*H030198*4	34416*8240/5030	Bromomethane	UG/KG-	ND	1250
[redacted]3/01/98	MB*H030198*4	34314*8240/5030	Chloroethane	UG/KG-	ND	1250
03/01/98	MB*H030198*4	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	625

[redacted]

KATALYST BATCH : P41047

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
03/01/98	MB*H030198*4	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	625
03/01/98	MB*H030198*4	75059*8240/5030	Acetone	UG/KG-	795	1250
03/01/98	MB*H030198*4	34426*8240/5030	Methylene Chloride	UG/KG-	105	625
03/01/98	MB*H030198*4	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	625
03/01/98	MB*H030198*4	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	625
03/01/98	MB*H030198*4	75078*8240/5030	2-Butanone	UG/KG-	289	1250
03/01/98	MB*H030198*4	34318*8240/5030	Chloroform	UG/KG-	ND	625
03/01/98	MB*H030198*4	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	625
03/01/98	MB*H030198*4	34237*8240/5030	Benzene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34487*8240/5030	Trichloroethene	UG/KG-	95.7	625
03/01/98	MB*H030198*4	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	625
03/01/98	MB*H030198*4	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	1250
03/01/98	MB*H030198*4	34483*8240/5030	Toluene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34478*8240/5030	Tetrachloroethene	UG/KG-	124	625
03/01/98	MB*H030198*4	75166*8240/5030	2-Hexanone	UG/KG-	286	1250
03/01/98	MB*H030198*4	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34304*8240/5030	Chlorobenzene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34374*8240/5030	Ethylbenzene	UG/KG-	ND	625
03/01/98	MB*H030198*4	45510*8240/5030	Xylenes (total)	UG/KG-	ND	625
03/01/98	MB*H030198*4	75192*8240/5030	Styrene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34290*8240/5030	Bromoform	UG/KG-	ND	625
03/01/98	MB*H030198*4	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34421*8240/5030	Chloromethane	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34416*8240/5030	Bromomethane	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34314*8240/5030	Chloroethane	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	625
03/02/98	MB*H030298*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	625
03/02/98	MB*H030298*1	75059*8240/5030	Acetone	UG/KG-	782	1250
03/02/98	MB*H030298*1	34426*8240/5030	Methylene Chloride	UG/KG-	80.3	625
03/02/98	MB*H030298*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	625
03/02/98	MB*H030298*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	625
03/02/98	MB*H030298*1	75078*8240/5030	2-Butanone	UG/KG-	391	1250
03/02/98	MB*H030298*1	34318*8240/5030	Chloroform	UG/KG-	ND	625
03/02/98	MB*H030298*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	625
03/02/98	MB*H030298*1	34237*8240/5030	Benzene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34487*8240/5030	Trichloroethene	UG/KG-	97.6	625
03/02/98	MB*H030298*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	625
03/02/98	MB*H030298*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34483*8240/5030	Toluene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34478*8240/5030	Tetrachloroethene	UG/KG-	295	625
03/02/98	MB*H030298*1	75166*8240/5030	2-Hexanone	UG/KG-	271	1250
03/02/98	MB*H030298*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	625
03/02/98	MB*H030298*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	625
03/02/98	MB*H030298*1	75192*8240/5030	Styrene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34290*8240/5030	Bromoform	UG/KG-	ND	625
03/02/98	MB*H030298*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	625

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/16/98	SPM1*26653*11	34504	1,1-Dichloroethene	UG/KG-	0.0	64.5	90.2	139.8	59-172		
02/16/98	SPM1*26653*11	34237	Benzene	UG/KG-	0.0	64.5	84.4	130.9	66-142		
02/16/98	SPM1*26653*11	34487	Trichloroethene	UG/KG-	0.0	64.5	69.3	107.4	62-137		
02/16/98	SPM1*26653*11	34483	Toluene	UG/KG-	0.0	64.5	86.1	133.5	59-139		

KATALYST BATCH : P41047

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/16/98	SPM1*26653*11	34304	Chlorobenzene	UG/KG-	0.0	64.5	77.8	120.6	60-133		
02/16/98	SPM2*26653*11	34504	1,1-Dichloroethene	UG/KG-	0.0	64.5	91.5	141.9	59-172	1.40	22
02/16/98	SPM2*26653*11	34237	Benzene	UG/KG-	0.0	64.5	82.8	128.4	66-142	2.00	21
02/16/98	SPM2*26653*11	34487	Trichloroethene	UG/KG-	0.0	64.5	68.0	105.4	62-137	1.90	24
02/16/98	SPM2*26653*11	34483	Toluene	UG/KG-	0.0	64.5	81.4	126.2	59-139	5.60	21
02/16/98	SPM2*26653*11	34304	Chlorobenzene	UG/KG-	0.0	64.5	74.5	115.5	60-133	4.30	21
02/16/98	SPM1*26668*2	34504	1,1-Dichloroethene	UG/KG-	0.0	64.0	89.9	140.5	59-172		
02/16/98	SPM1*26668*2	34237	Benzene	UG/KG-	0.0	64.0	83.6	130.6	66-142		
02/16/98	SPM1*26668*2	34487	Trichloroethene	UG/KG-	0.0	64.0	68.9	107.7	62-137		
02/16/98	SPM1*26668*2	34483	Toluene	UG/KG-	0.0	64.0	83.1	129.8	59-139		
02/16/98	SPM1*26668*2	34304	Chlorobenzene	UG/KG-	0.0	64.0	73.3	114.5	60-133		
02/16/98	SPM2*26668*2	34504	1,1-Dichloroethene	UG/KG-	0.0	64.0	88.9	138.9	59-172	1.10	22
02/16/98	SPM2*26668*2	34237	Benzene	UG/KG-	0.0	64.0	88.5	138.3	66-142	5.70	21
02/16/98	SPM2*26668*2	34487	Trichloroethene	UG/KG-	0.0	64.0	73.3	114.5	62-137	6.10	24
02/16/98	SPM2*26668*2	34483	Toluene	UG/KG-	0.0	64.0	83.3	130.2	59-139	0.20	21
02/16/98	SPM2*26668*2	34304	Chlorobenzene	UG/KG-	0.0	64.0	76.0	118.8	60-133	3.60	21
02/20/98	SPM1*26688*2	34504	1,1-Dichloroethene	UG/KG-	0.0	63.6	87.5	137.6	59-172		
02/20/98	**SPM1*26688*2**	**34237**	**Benzene**	**UG/KG-**	**0.0**	**63.6**	**91.1**	**143.2**	**66-142**		
02/20/98	SPM1*26688*2	34487	Trichloroethene	UG/KG-	1.38	63.6	74.4	117.0	62-137		
02/20/98	SPM1*26688*2	34483	Toluene	UG/KG-	0.0	63.6	86.0	135.2	59-139		
02/20/98	SPM1*26688*2	34304	Chlorobenzene	UG/KG-	0.0	63.6	78.9	124.1	60-133		
02/20/98	SPM2*26688*2	34504	1,1-Dichloroethene	UG/KG-	0.0	63.6	83.3	131.0	59-172	5.00	22
02/20/98	SPM2*26688*2	34237	Benzene	UG/KG-	0.0	63.6	84.5	132.9	66-142	7.50	21
02/20/98	SPM2*26688*2	34487	Trichloroethene	UG/KG-	1.38	63.6	71.7	112.7	62-137	3.80	24
02/20/98	SPM2*26688*2	34483	Toluene	UG/KG-	0.0	63.6	80.7	126.9	59-139	6.30	21
02/20/98	SPM2*26688*2	34304	Chlorobenzene	UG/KG-	0.0	63.6	74.2	116.7	60-133	6.20	21

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	**DA*26668*2**	**98813*SUR**	**1,2-DICHLOROETHANE-D4 (SW846)**	**UG/KG-**	**50**	**63**	**130**	**70-121**
02/16/98	DA*26668*2	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	58	120	81-121
02/16/98	DA*26668*2	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	53	110	74-121
02/16/98	SPM1*26668*2	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	60	120	70-121
02/16/98	SPM1*26668*2	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	59	120	81-121
02/16/98	SPM1*26668*2	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	55	110	74-121
02/16/98	SPM2*26668*2	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	62	120	70-121
02/16/98	SPM2*26668*2	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	56	110	81-121
02/16/98	SPM2*26668*2	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	55	110	74-121
02/16/98	DA*26668*3	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	61	120	70-121
02/16/98	**DA*26668*3**	**98811*SUR**	**TOLUENE-D8 (SW846)**	**UG/KG-**	**50**	**63**	**130**	**81-121**
02/16/98	DA*26668*3	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	51	100	74-121
02/16/98	DA*26668*4	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	62	120	70-121
02/16/98	DA*26668*4	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	60	120	81-121
02/16/98	DA*26668*4	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	50	100	74-121
02/16/98	DA*26668*5	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	62	120	70-121
02/16/98	**DA*26668*5**	**98811*SUR**	**TOLUENE-D8 (SW846)**	**UG/KG-**	**50**	**64**	**130**	**81-121**
02/16/98	DA*26668*5	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	48	96	74-121
02/16/98	**DA*26668*6**	**98813*SUR**	**1,2-DICHLOROETHANE-D4 (SW846)**	**UG/KG-**	**50**	**63**	**130**	**70-121**
02/16/98	DA*26668*6	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	60	120	81-121
02/16/98	DA*26668*6	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	49	98	74-121
02/16/98	DA*26668*7	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	61	120	70-121
02/16/98	DA*26668*7	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	58	120	81-121
02/16/98	DA*26668*7	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	52	100	74-121
02/16/98	DA*26668*8	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	61	120	70-121
02/16/98	DA*26668*8	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	58	120	81-121
02/16/98	DA*26668*8	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	53	110	74-121
02/17/98	DA*26668*9	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	62	120	70-121
02/17/98	DA*26668*9	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	62	120	81-121
02/17/98	DA*26668*9	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	51	100	74-121
02/17/98	DA*26668*1	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	57	110	70-121
02/17/98	DA*26668*1	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	52	100	81-121
02/17/98	DA*26668*1	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	52	100	74-121
02/17/98	DA*26668*10	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	61	120	70-121
02/17/98	DA*26668*10	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	60	120	81-121
02/17/98	DA*26668*10	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	59	120	74-121
02/17/98	DA*26668*11	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	60	120	70-121
02/17/98	**DA*26668*11**	**98811*SUR**	**TOLUENE-D8 (SW846)**	**UG/KG-**	**50**	**64**	**130**	**81-121**
02/17/98	DA*26668*11	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	53	110	74-121
02/17/98	DA*26668*12	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	60	120	70-121
02/17/98	DA*26668*12	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	61	120	81-121
02/17/98	DA*26668*12	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	56	110	74-121

KATALYST BATCH : P41047

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P41047 Analysis Date: 03/02/98 Analyst: TROY AVERY Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	34237*8240/5030
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X		
Surrogate present?	X		
Surrogate within acceptance criteria?		X	98813*SUR 98811*SUR 98403*SUR

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40859
ALYSIS : SW7421

QC TYPE : FDER/SW
ANALYST : JON BUERCK
XTRACTOR : TOM FERRELL
TA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 12:13
ANALYSIS DATE/TIME : 02/11/98
EXTRACT DATE : 02/04/98

STATUS : FINAL

THOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
6668	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26668*1	S10B1-4'-5'	02/10/98	11:32AM
A*26668*2	S10B1-6'-7'	02/10/98	11:44AM
A*26668*3	S10B2-3'-5'	02/10/98	12:13PM
DA*26668*4	S10B2 5'-6'	02/10/98	12:36PM
DA*26668*5	S10B4 3'-5'	02/10/98	12:48PM
A*26668*6	S26B1 2'-3'	02/10/98	12:59PM
A*26668*7	S26B1 7'-9'	02/10/98	01:10PM
A*26668*8	S26B1 10'-11'	02/10/98	01:21PM
DA*26668*9	S26B2 3'-4'	02/10/98	01:45PM
DA*26668*10	S26B2 7'-8'	02/10/98	01:56PM
A*26668*11	S26B3 2'-3'	02/10/98	02:08PM
A*26668*12	S26B3 9'-11'	02/10/98	02:20PM

KATALYST BATCH : P40859

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/10/98	CCB*980210PB*1	1052*7421/3050	Lead	MG/KG-	ND
02/10/98	CCB*980210PB*2	1052*7421/3050	Lead	MG/KG-	ND
02/10/98	CCB*980210PB*3	1052*7421/3050	Lead	MG/KG-	ND
02/10/98	CCB*980210PB*4	1052*7421/3050	Lead	MG/KG-	ND
02/10/98	CCB*980210PB*5	1052*7421/3050	Lead	MG/KG-	ND
02/10/98	CCB*980210PB*6	1052*7421/3050	Lead	MG/KG-	ND
02/10/98	CCB*980210PB*7	1052*7421/3050	Lead	MG/KG-	ND
02/10/98	CCB*980210PB*8	1052*7421/3050	Lead	MG/KG-	ND
02/10/98	CCB*980210PB*9	1052*7421/3050	Lead	MG/KG-	ND
02/11/98	CCB*980211PB*1	1052*7421/3050	Lead	MG/KG-	0.00003
02/11/98	CCB*980211PB*2	1052*7421/3050	Lead	MG/KG-	ND
02/11/98	CCB*980211PB*3	1052*7421/3050	Lead	MG/KG-	ND
02/11/98	CCB*980211PB*4	1052*7421/3050	Lead	MG/KG-	ND
02/11/98	CCB*980211PB*5	1052*7421/3050	Lead	MG/KG-	ND
02/11/98	CCB*980211PB*6	1052*7421/3050	Lead	MG/KG-	0.00002

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/10/98	CCV*980210PB*1	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110
02/10/98	CCV*980210PB*2	1052*7421/3050	Lead	MG/KG-	0.020	0.021	105	90-110
02/10/98	CCV*980210PB*3	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110
02/10/98	CCV*980210PB*4	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110
02/10/98	CCV*980210PB*5	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110
02/10/98	CCV*980210PB*6	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110
02/10/98	CCV*980210PB*7	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110
02/10/98	CCV*980210PB*8	1052*7421/3050	Lead	MG/KG-	0.020	0.019	95.0	90-110
02/10/98	CCV*980210PB*9	1052*7421/3050	Lead	MG/KG-	0.020	0.019	95.0	90-110
02/11/98	CCV*980211PB*1	1052*7421/3050	Lead	MG/KG-	0.020	0.021	105	90-110
02/11/98	CCV*980211PB*2	1052*7421/3050	Lead	MG/KG-	0.020	0.019	95.0	90-110
02/11/98	CCV*980211PB*3	1052*7421/3050	Lead	MG/KG-	0.020	0.019	95.0	90-110
02/11/98	CCV*980211PB*4	1052*7421/3050	Lead	MG/KG-	0.020	0.019	95.0	90-110
02/11/98	CCV*980211PB*5	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110
02/11/98	CCV*980211PB*6	1052*7421/3050	Lead	MG/KG-	0.020	0.019	95.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/10/98	ICV*980210PB*1	1052*7421/3050	Lead	MG/KG-	0.030	0.032	107	90-110
02/11/98	ICV*980211PB*1	1052*7421/3050	Lead	MG/KG-	0.030	0.031	103	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/10/98	LCS*98MP27054*1	1052*7421/3050	Lead	MG/KG-	2.00	2.28	114.0	80-120
02/10/98	LCS*98MP27045*1	1052*7421/3050	Lead	MG/KG-	2.00	1.95	97.5	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/10/98	MB*98MP27054*1	1052*7421/3050	Lead	MG/KG-	ND	0.500
02/10/98	MB*98MP27045*1	1052*7421/3050	Lead	MG/KG-	ND	0.500

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/10/98	**RP*26668*2**	**1052*7421/3050**	**Lead**	**MG/KG-**	**14.4**	**10.1**	**35.1**		**20**
02/10/98	RP*26653*11	1052*7421/3050	Lead	MG/KG-	11.5	11.2			20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/10/98	SPM1*26668*2	1052	Lead	MG/KG-	14.4	2.52	3.00	119.0	75-125		
02/10/98	**SPM2*26668*2**	**1052**	**Lead**	**MG/KG-**	**14.4**	**2.52**	**0.100**	**3.97**	**75-125**	**187**	**20**
02/10/98	**SPM1*26653*11**	**1052**	**Lead**	**MG/KG-**	**11.5**	**2.54**	**1.90**	**74.8**	**75-125**		
02/10/98	SPM2*26653*11	1052	Lead	MG/KG-	11.5	2.57	2.30	89.5	75-125	17.8	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/10/98	SPX*26668*1	1052*7421/3050	Lead	MG/KG-	12.3	11.0	89.4	85-115
02/10/98	SPX*26668*2	1052*7421/3050	Lead	MG/KG-	12.8	11.6	90.6	85-115
02/10/98	SPX*26668*3	1052*7421/3050	Lead	MG/KG-	24.6	24.8	100.8	85-115

KATALYST BATCH : P40859

[redacted]pike into Matrix Recovery Summary

[redacted]ATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/10/98	SPX*26668*4	1052*7421/3050	Lead	MG/KG-	12.8	11.4	89.1	85-115
[redacted]2/10/98	SPX*26668*5	1052*7421/3050	Lead	MG/KG-	25.2	24.7	98.0	85-115
[redacted]2/10/98	SPX*26668*6	1052*7421/3050	Lead	MG/KG-	12.5	12.8	102.4	85-115
[redacted]2/10/98	SPX*26668*7	1052*7421/3050	Lead	MG/KG-	12.8	12.5	97.7	85-115
02/10/98	SPX*26668*8	1052*7421/3050	Lead	MG/KG-	5.15	4.59	89.1	85-115
02/10/98	SPX*26668*9	1052*7421/3050	Lead	MG/KG-	12.6	11.6	92.1	85-115
[redacted]2/10/98	SPX*26668*10	1052*7421/3050	Lead	MG/KG-	5.12	4.36	85.2	85-115
[redacted]2/10/98	SPX*26668*11	1052*7421/3050	Lead	MG/KG-	25.3	23.6	93.3	85-115
[redacted]2/10/98	SPX*26668*12	1052*7421/3050	Lead	MG/KG-	12.8	12.5	97.7	85-115
02/10/98	SPX*26653*1	1052*7421/3050	Lead	MG/KG-	12.3	10.8	87.8	85-115
02/10/98	**SPX*26653*2**	**1052*7421/3050**	**Lead**	**MG/KG-**	**5.12**	**4.25**	**83.0**	**85-115**
[redacted]2/10/98	SPX*26653*3	1052*7421/3050	Lead	MG/KG-	24.9	24.2	97.2	85-115
[redacted]2/10/98	SPX*26653*4	1052*7421/3050	Lead	MG/KG-	13.3	11.3	85.0	85-115
02/10/98	**SPX*26653*5**	**1052*7421/3050**	**Lead**	**MG/KG-**	**5.02**	**3.91**	**77.9**	**85-115**
02/10/98	**SPX*26653*7**	**1052*7421/3050**	**Lead**	**MG/KG-**	**12.4**	**10.4**	**83.9**	**85-115**
[redacted]2/10/98	SPX*26653*8	1052*7421/3050	Lead	MG/KG-	12.5	11.5	92.0	85-115
[redacted]2/10/98	SPX*26653*9	1052*7421/3050	Lead	MG/KG-	12.6	10.8	85.7	85-115
[redacted]2/10/98	**SPX*26653*11**	**1052*7421/3050**	**Lead**	**MG/KG-**	**12.8**	**10.7**	**83.6**	**85-115**
02/10/98	SPX*26653*13	1052*7421/3050	Lead	MG/KG-	12.9	11.2	86.8	85-115
[redacted]2/11/98	SPX*26653*6	1052*7421/3050	Lead	MG/KG-	52.0	52.6	101.2	85-115
[redacted]2/11/98	SPX*26653*12	1052*7421/3050	Lead	MG/KG-	120	106	88.3	85-115

KATALYST BATCH : P40859

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40859 Analysis Date: 02/11/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCB present?	X		
CCB within acceptance criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?		X	1052*7421/3050
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	1052*7421/3050 SPX*26653*7 Exceeds criteria. (Recovery Limit 1
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?		X	1052*7421/3050 SPX*26653*7 Exceeds criteria. (Recovery Limit 1
Analytical spike present?	X		
Analytical spike within acceptance criteria?		X	1052*7421/3050

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40925
[redacted]NALYSIS : 8260

QC TYPE : FDER/SW
ANALYST : TROY AVERY
[redacted]XTRACTOR :
[redacted]ATA ENTRY : GCMS UPLOAD

REPORT DATE/TIME : 03/09/98 12:13
ANALYSIS DATE/TIME : 02/18/98
EXTRACT DATE :

STATUS : FINAL

[redacted]ETHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
AFCEE

[redacted]IELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
[redacted]6668	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE [redacted]ODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
[redacted]A*26668*1	S10B1-4'-5'	02/18/98	01:07PM
[redacted]DA*26668*3	S10B2-3'-5'	02/18/98	02:06PM
DA*26668*2	S10B1-6'-7'	02/18/98	02:36PM

KATALYST BATCH : P40925

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/18/98	LCS*J021898*1	34504*8260	1,1-Dichloroethene	UG/KG-	50.0	51.4	102.8	59-172
02/18/98	LCS*J021898*1	34237*8260	Benzene	UG/KG-	50.0	50.2	100.4	66-142
02/18/98	LCS*J021898*1	34487*8260	Trichloroethene	UG/KG-	50.0	48.3	96.6	62-137
02/18/98	LCS*J021898*1	34483*8260	Toluene	UG/KG-	50.0	50.4	100.8	59-139
02/18/98	LCS*J021898*1	34304*8260	Chlorobenzene	UG/KG-	50.0	50.3	100.6	60-133

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/18/98	MB*J021898*1	34421*8260	Chloromethane	UG/KG-	ND	7.00
02/18/98	MB*J021898*1	34495*8260	Vinyl Chloride	UG/KG-	ND	9.00
02/18/98	MB*J021898*1	34416*8260	Bromomethane	UG/KG-	ND	5.00
02/18/98	MB*J021898*1	34314*8260	Chloroethane	UG/KG-	ND	5.00
02/18/98	MB*J021898*1	34504*8260	1,1-Dichloroethene	UG/KG-	ND	6.00
02/18/98	MB*J021898*1	75059*8260	Acetone	UG/KG-	ND	10.00
02/18/98	MB*J021898*1	78544*8260	Carbon Disulfide	UG/KG-	ND	5.00
02/18/98	MB*J021898*1	34426*8260	Methylene Chloride	UG/KG-	ND	2.00
02/18/98	MB*J021898*1	34549*8260	trans-1,2-Dichloroethene	UG/KG-	ND	3.00
02/18/98	MB*J021898*1	34499*8260	1,1-Dichloroethane	UG/KG-	ND	2.00
02/18/98	MB*J021898*1	78498*8260	Vinyl Acetate	UG/KG-	ND	5.00
02/18/98	MB*J021898*1	97354*8260	cis-1,2-Dichloroethene	UG/KG-	ND	6.00
02/18/98	MB*J021898*1	75078*8260	2-Butanone	UG/KG-	ND	10.00
02/18/98	MB*J021898*1	34318*8260	Chloroform	UG/KG-	ND	2.00
02/18/98	MB*J021898*1	34509*8260	1,1,1-Trichloroethane	UG/KG-	ND	4.00
02/18/98	MB*J021898*1	34299*8260	Carbon Tetrachloride	UG/KG-	ND	10.00
02/18/98	MB*J021898*1	34237*8260	Benzene	UG/KG-	ND	2.00
02/18/98	MB*J021898*1	34534*8260	1,2-Dichloroethane	UG/KG-	ND	3.00
02/18/98	MB*J021898*1	34487*8260	Trichloroethene	UG/KG-	ND	10.00
02/18/98	MB*J021898*1	34544*8260	1,2-Dichloropropane	UG/KG-	ND	2.00
02/18/98	MB*J021898*1	34330*8260	Bromodichloromethane	UG/KG-	ND	4.00
02/18/98	MB*J021898*1	34702*8260	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/18/98	MB*J021898*1	75169*8260	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/18/98	MB*J021898*1	34483*8260	Toluene	UG/KG-	ND	5.00
02/18/98	MB*J021898*1	34697*8260	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/18/98	MB*J021898*1	34514*8260	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/18/98	MB*J021898*1	34478*8260	Tetrachloroethene	UG/KG-	ND	7.00
02/18/98	MB*J021898*1	75166*8260	2-Hexanone	UG/KG-	ND	10.00
02/18/98	MB*J021898*1	34309*8260	Dibromochloromethane	UG/KG-	ND	3.00
02/18/98	MB*J021898*1	34304*8260	Chlorobenzene	UG/KG-	ND	2.00
02/18/98	MB*J021898*1	34374*8260	Ethylbenzene	UG/KG-	ND	3.00
02/18/98	MB*J021898*1	45510*8260	Xylenes (total)	UG/KG-	ND	3.00
02/18/98	MB*J021898*1	75192*8260	Styrene	UG/KG-	ND	2.00
02/18/98	MB*J021898*1	34290*8260	Bromoform	UG/KG-	ND	6.00
02/18/98	MB*J021898*1	34519*8260	1,1,2,2-Tetrachloroethane	UG/KG-	ND	2.00

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/18/98	SPM1*26668*2	34504	1,1-Dichloroethene	UG/KG-	0.0	64.0	65.0	101.6	59-172		
02/18/98	SPM1*26668*2	34237	Benzene	UG/KG-	0.0	64.0	64.1	100.2	66-142		
02/18/98	SPM1*26668*2	34487	Trichloroethene	UG/KG-	4.34	64.0	74.6	116.6	62-137		
02/18/98	SPM1*26668*2	34483	Toluene	UG/KG-	0.0	64.0	63.3	98.9	59-139		
02/18/98	SPM1*26668*2	34304	Chlorobenzene	UG/KG-	0.0	64.0	64.1	100.2	60-133		
02/18/98	SPM2*26668*2	34504	1,1-Dichloroethene	UG/KG-	0.0	64.0	64.8	101.3	59-172	0.40	22
02/18/98	SPM2*26668*2	34237	Benzene	UG/KG-	0.0	64.0	64.8	101.3	66-142	1.00	21
02/18/98	SPM2*26668*2	34487	Trichloroethene	UG/KG-	4.34	64.0	76.1	118.9	62-137	2.00	24
02/18/98	SPM2*26668*2	34483	Toluene	UG/KG-	0.0	64.0	64.0	100.0	59-139	1.10	21
02/18/98	SPM2*26668*2	34304	Chlorobenzene	UG/KG-	0.0	64.0	64.9	101.4	60-133	1.20	21

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/18/98	DA*26668*1	95512*SUR	Dibromofluoromethane	UG/KG-	50	53	110	80-120
02/18/98	DA*26668*1	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	49	98	81-121
02/18/98	DA*26668*1	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	39	78	74-121
02/18/98	DA*26668*3	95512*SUR	Dibromofluoromethane	UG/KG-	50	51	100	80-120
02/18/98	DA*26668*3	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	51	100	81-121
02/18/98	DA*26668*3	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	44	88	74-121
02/18/98	DA*26668*2	95512*SUR	Dibromofluoromethane	UG/KG-	50	48	96	80-120
02/18/98	DA*26668*2	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	48	96	81-121
02/18/98	DA*26668*2	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	45	90	74-121
02/18/98	SPM1*26668*2	95512*SUR	Dibromofluoromethane	UG/KG-	50	51	100	80-120
02/18/98	SPM1*26668*2	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	49	98	81-121

KATALYST BATCH : P40925

[redacted]rrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/18/98	SPM1*26668*2	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	45	90	74-121
[redacted]/18/98	SPM2*26668*2	95512*SUR	Dibromofluoromethane	UG/KG-	50	54	110	80-120
[redacted]/18/98	SPM2*26668*2	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	51	100	81-121
[redacted]/18/98	SPM2*26668*2	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	45	90	74-121

KATALYST BATCH : P40925

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40925 Analysis Date: 02/18/98 Analyst: TROY AVERY Report Date: 03/09/98

	Yes	No
Are ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
LCS present?	X	
LCS within acceptance criteria?	X	
Method blank present?	X	
Method blank within acceptance criteria?	X	
Sample matrix spike present?	X	
Sample matrix spike within acceptance criteria?	X	
Sample matrix spike duplicate present?	X	
Sample matrix spike duplicate within acceptance criteria?	X	
Surrogate present?	X	
Surrogate within acceptance criteria?	X	

BATCH OVERRIDE BY: TROY AVERY 1006

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40885
NALYSIS : SW6010

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
ATA ENTRY : ICP UPLOAD

REPORT DATE/TIME : 03/09/98 12:14
ANALYSIS DATE/TIME : 02/12/98
EXTRACT DATE : 02/11/98

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26668	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26668*13	S21 MW1	02/12/98	05:54PM

KATALYST BATCH : P40885

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/12/98	CCB*980212*1	1042*6010/3010	Copper,total	UG/L	6.2
02/12/98	CCB*980212*1	1051*6010/3010	Lead,total	UG/L	17.4
02/12/98	CCB*980212*1	1007*6010/3010	Barium,total	UG/L	1.9
02/12/98	CCB*980212*1	1027*6010/3010	Cadmium,total	UG/L	1.8
02/12/98	CCB*980212*1	1034*6010/3010	Chromium,total	UG/L	9.7
02/12/98	CCB*980212*1	1077*6010/3010	Silver,total	UG/L	6.4
02/12/98	CCB*980212*1	1045*6010/3010	Iron,total	UG/L	4.3
02/12/98	CCB*980212*2	1042*6010/3010	Copper,total	UG/L	3.1
02/12/98	CCB*980212*2	1051*6010/3010	Lead,total	UG/L	8.4
02/12/98	CCB*980212*2	1007*6010/3010	Barium,total	UG/L	ND
02/12/98	CCB*980212*2	1027*6010/3010	Cadmium,total	UG/L	1.1
02/12/98	CCB*980212*2	1034*6010/3010	Chromium,total	UG/L	0.8
02/12/98	CCB*980212*2	1077*6010/3010	Silver,total	UG/L	ND
02/12/98	CCB*980212*2	1045*6010/3010	Iron,total	UG/L	ND
02/12/98	CCB*980212*3	1042*6010/3010	Copper,total	UG/L	ND
02/12/98	CCB*980212*3	1051*6010/3010	Lead,total	UG/L	ND
02/12/98	CCB*980212*3	1007*6010/3010	Barium,total	UG/L	ND
02/12/98	CCB*980212*3	1027*6010/3010	Cadmium,total	UG/L	3.9
02/12/98	CCB*980212*3	1034*6010/3010	Chromium,total	UG/L	ND
02/12/98	CCB*980212*3	1077*6010/3010	Silver,total	UG/L	0.5
02/12/98	CCB*980212*3	1045*6010/3010	Iron,total	UG/L	ND
02/12/98	CCB*980212*4	1042*6010/3010	Copper,total	UG/L	ND
02/12/98	CCB*980212*4	1051*6010/3010	Lead,total	UG/L	5.4
02/12/98	CCB*980212*4	1007*6010/3010	Barium,total	UG/L	ND
02/12/98	CCB*980212*4	1027*6010/3010	Cadmium,total	UG/L	0.1
02/12/98	CCB*980212*4	1034*6010/3010	Chromium,total	UG/L	1.8
02/12/98	CCB*980212*4	1077*6010/3010	Silver,total	UG/L	0.6
02/12/98	CCB*980212*4	1045*6010/3010	Iron,total	UG/L	0.8

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	CCV*980212*1	1042*6010/3010	Copper,total	UG/L	4000	3920	98.0	90-110
02/12/98	CCV*980212*1	1051*6010/3010	Lead,total	UG/L	4000	3750	93.8	90-110
02/12/98	CCV*980212*1	1007*6010/3010	Barium,total	UG/L	4000	3890	97.3	90-110
02/12/98	CCV*980212*1	1027*6010/3010	Cadmium,total	UG/L	4000	3910	97.8	90-110
02/12/98	CCV*980212*1	1034*6010/3010	Chromium,total	UG/L	4000	3810	95.3	90-110
02/12/98	CCV*980212*1	1077*6010/3010	Silver,total	UG/L	400	375	93.8	90-110
02/12/98	CCV*980212*1	1045*6010/3010	Iron,total	UG/L	4000	4100	103	90-110
02/12/98	CCV*980212*2	1042*6010/3010	Copper,total	UG/L	4000	3880	97.0	90-110
02/12/98	CCV*980212*2	1051*6010/3010	Lead,total	UG/L	4000	3720	93.0	90-110
02/12/98	CCV*980212*2	1007*6010/3010	Barium,total	UG/L	4000	3840	96.0	90-110
02/12/98	CCV*980212*2	1027*6010/3010	Cadmium,total	UG/L	4000	3870	96.8	90-110
02/12/98	CCV*980212*2	1034*6010/3010	Chromium,total	UG/L	4000	3780	94.5	90-110
02/12/98	CCV*980212*2	1077*6010/3010	Silver,total	UG/L	400	372	93.0	90-110
02/12/98	CCV*980212*2	1045*6010/3010	Iron,total	UG/L	4000	4050	101	90-110
02/12/98	CCV*980212*3	1042*6010/3010	Copper,total	UG/L	4000	3890	97.3	90-110
02/12/98	CCV*980212*3	1051*6010/3010	Lead,total	UG/L	4000	3730	93.3	90-110
02/12/98	CCV*980212*3	1007*6010/3010	Barium,total	UG/L	4000	3860	96.5	90-110
02/12/98	CCV*980212*3	1027*6010/3010	Cadmium,total	UG/L	4000	3890	97.3	90-110
02/12/98	CCV*980212*3	1034*6010/3010	Chromium,total	UG/L	4000	3780	94.5	90-110
02/12/98	CCV*980212*3	1077*6010/3010	Silver,total	UG/L	400	372	93.0	90-110
02/12/98	CCV*980212*3	1045*6010/3010	Iron,total	UG/L	4000	4060	102	90-110
02/12/98	CCV*980212*4	1042*6010/3010	Copper,total	UG/L	4000	3910	97.8	90-110
02/12/98	CCV*980212*4	1051*6010/3010	Lead,total	UG/L	4000	3730	93.3	90-110
02/12/98	CCV*980212*4	1007*6010/3010	Barium,total	UG/L	4000	3880	97.0	90-110
02/12/98	CCV*980212*4	1027*6010/3010	Cadmium,total	UG/L	4000	3890	97.3	90-110
02/12/98	CCV*980212*4	1034*6010/3010	Chromium,total	UG/L	4000	3800	95.0	90-110
02/12/98	CCV*980212*4	1077*6010/3010	Silver,total	UG/L	400	372	93.0	90-110
02/12/98	CCV*980212*4	1045*6010/3010	Iron,total	UG/L	4000	4060	102	90-110

Interference Check Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	ICS*A*1	1045*6010/3010	Iron,total	UG/L	200000	184000	92.0	80-120
02/12/98	ICS*AB*1	1042*6010/3010	Copper,total	UG/L	500	470	94.0	80-120
02/12/98	ICS*AB*1	1051*6010/3010	Lead,total	UG/L	1000	878	87.8	80-120
02/12/98	ICS*AB*1	1007*6010/3010	Barium,total	UG/L	500	467	93.4	80-120
02/12/98	ICS*AB*1	1027*6010/3010	Cadmium,total	UG/L	1000	871	87.1	80-120
02/12/98	ICS*AB*1	1034*6010/3010	Chromium,total	UG/L	500	456	91.2	80-120
02/12/98	ICS*AB*1	1077*6010/3010	Silver,total	UG/L	1000	928	92.8	80-120
02/12/98	ICS*AB*1	1045*6010/3010	Iron,total	UG/L	200000	189000	94.5	80-120
02/12/98	ICS*A*2	1045*6010/3010	Iron,total	UG/L	200000	183000	91.5	80-120

KATALYST BATCH : P40885

Interference Check Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	ICS*AB*2	1042*6010/3010	Copper,total	UG/L	500	457	91.4	80-120
02/12/98	ICS*AB*2	1051*6010/3010	Lead,total	UG/L	1000	872	87.2	80-120
02/12/98	ICS*AB*2	1007*6010/3010	Barium,total	UG/L	500	457	91.4	80-120
02/12/98	ICS*AB*2	1027*6010/3010	Cadmium,total	UG/L	1000	868	86.8	80-120
02/12/98	ICS*AB*2	1034*6010/3010	Chromium,total	UG/L	500	448	89.6	80-120
02/12/98	ICS*AB*2	1077*6010/3010	Silver,total	UG/L	1000	909	90.9	80-120
02/12/98	ICS*AB*2	1045*6010/3010	Iron,total	UG/L	200000	186000	93.0	80-120

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	ICV*980212*1	1042*6010/3010	Copper,total	UG/L	6000	6050	101	90-110
02/12/98	ICV*980212*1	1051*6010/3010	Lead,total	UG/L	6000	5730	95.5	90-110
02/12/98	ICV*980212*1	1007*6010/3010	Barium,total	UG/L	6000	6040	101	90-110
02/12/98	ICV*980212*1	1027*6010/3010	Cadmium,total	UG/L	6000	5970	99.5	90-110
02/12/98	ICV*980212*1	1034*6010/3010	Chromium,total	UG/L	6000	5840	97.3	90-110
02/12/98	ICV*980212*1	1077*6010/3010	Silver,total	UG/L	600	574	95.7	90-110
02/12/98	ICV*980212*1	1045*6010/3010	Iron,total	UG/L	6000	6290	105	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	LCS*98MP27071*1	1042*6010/3010	Copper,total	UG/L	5000	4770	95.4	80-120
02/12/98	LCS*98MP27071*1	1051*6010/3010	Lead,total	UG/L	5000	4550	91.0	80-120
02/12/98	LCS*98MP27071*1	1007*6010/3010	Barium,total	UG/L	5000	4740	94.8	80-120
02/12/98	LCS*98MP27071*1	1027*6010/3010	Cadmium,total	UG/L	5000	4730	94.6	80-120
02/12/98	LCS*98MP27071*1	1034*6010/3010	Chromium,total	UG/L	5000	4630	92.6	80-120
02/12/98	LCS*98MP27071*1	1077*6010/3010	Silver,total	UG/L	500	452	90.4	80-120
02/12/98	LCS*98MP27071*1	1045*6010/3010	Iron,total	UG/L	5000	4980	99.6	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/12/98	MB*98MP27071*1	1042*6010/3010	Copper,total	UG/L	9.3	10.0
02/12/98	MB*98MP27071*1	1051*6010/3010	Lead,total	UG/L	1.8	50.0
02/12/98	MB*98MP27071*1	1007*6010/3010	Barium,total	UG/L	0.5	10.0
02/12/98	MB*98MP27071*1	1027*6010/3010	Cadmium,total	UG/L	2.1	5.0
02/12/98	MB*98MP27071*1	1034*6010/3010	Chromium,total	UG/L	2.2	10.0
02/12/98	MB*98MP27071*1	1077*6010/3010	Silver,total	UG/L	2.8	10.0
02/12/98	MB*98MP27071*1	1045*6010/3010	Iron,total	UG/L	28.0	100.0

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/12/98	RP*26682*10	1007*6010/3010	Barium,total	UG/L	435	434	0.2		20
02/12/98	RP*26682*10	1027*6010/3010	Cadmium,total	UG/L	<5.0	<5.0			20
02/12/98	RP*26682*10	1034*6010/3010	Chromium,total	UG/L	<10.0	20.6			20
02/12/98	RP*26682*10	1077*6010/3010	Silver,total	UG/L	<10.0	<10.0			20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/12/98	SPM1*26682*10	1042	Copper,total	UG/L	11.4	5000	4640	92.8	75-125		
02/12/98	SPM1*26682*10	1051	Lead,total	UG/L	11.1	5000	4260	85.2	75-125		
02/12/98	SPM1*26682*10	1007	Barium,total	UG/L	435	5000	4630	92.6	75-125		
02/12/98	SPM1*26682*10	1027	Cadmium,total	UG/L	3.2	5000	4410	88.2	75-125		
02/12/98	SPM1*26682*10	1034	Chromium,total	UG/L	9.3	5000	4380	87.6	75-125		
02/12/98	SPM1*26682*10	1077	Silver,total	UG/L	1.2	500	442	88.4	54-125		
02/12/98	SPM1*26682*10	1045	Iron,total	UG/L	4270	5000	5120	102.4	75-125		
02/12/98	SPM2*26682*10	1042	Copper,total	UG/L	11.4	5000	4400	88.0	75-125	5.3	20
02/12/98	SPM2*26682*10	1051	Lead,total	UG/L	11.1	5000	4130	82.6	75-125	3.1	20
02/12/98	SPM2*26682*10	1007	Barium,total	UG/L	435	5000	4380	87.6	75-125	5.6	20
02/12/98	SPM2*26682*10	1027	Cadmium,total	UG/L	3.2	5000	4260	85.2	75-125	3.5	20
02/12/98	SPM2*26682*10	1034	Chromium,total	UG/L	9.3	5000	4190	83.8	75-125	4.4	20
02/12/98	SPM2*26682*10	1077	Silver,total	UG/L	1.2	500	433	86.6	54-125	2.1	20
02/12/98	SPM2*26682*10	1045	Iron,total	UG/L	4270	5000	4640	92.8	75-125	9.8	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	SPX*26682*10	1042*6010/3010	Copper,total	UG/L	5000	4900	98.0	75-125
02/12/98	SPX*26682*10	1051*6010/3010	Lead,total	UG/L	5000	4550	91.0	75-125
02/12/98	SPX*26682*10	1007*6010/3010	Barium,total	UG/L	5000	4940	98.8	75-125

KATALYST BATCH : P40885

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	SPX*26682*10	1027*6010/3010	Cadmium,total	UG/L	5000	4700	94.0	75-125
02/12/98	SPX*26682*10	1034*6010/3010	Chromium,total	UG/L	5000	4670	93.4	75-125
02/12/98	SPX*26682*10	1077*6010/3010	Silver,total	UG/L	500	464	92.8	75-125
02/12/98	SPX*26682*10	1045*6010/3010	Iron,total	UG/L	5000	5490	109.8	75-125

KATALYST BATCH : P40885

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40885 Analysis Date: 02/12/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCB present?	X		
CCB within acceptance criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICS present?	X		
ICS within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?		X	1042*6010/3010 1034*6010/3010
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?	X		
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X		
Analytical spike present?	X		
Analytical spike within acceptance criteria?	X		

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40904
ANALYSIS : SW7421

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 12:14
ANALYSIS DATE/TIME : 02/16/98
EXTRACT DATE : 02/11/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26668	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26668*13	S21 MW1	02/16/98	06:31PM

KATALYST BATCH : P40904

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/12/98	CCB*980212PB*1	1051*7421/3020	Lead,total	UG/L	ND
02/12/98	CCB*980212PB*2	1051*7421/3020	Lead,total	UG/L	0.8
02/16/98	CCB*980216PB*1	1051*7421/3020	Lead,total	UG/L	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	CCV*980212PB*1	1051*7421/3020	Lead,total	UG/L	20.0	20.2	101	90-110
02/12/98	CCV*980212PB*2	1051*7421/3020	Lead,total	UG/L	20.0	21.1	106	90-110
02/16/98	CCV*980216PB*1	1051*7421/3020	Lead,total	UG/L	20.0	21.5	108	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	ICV*980212PB*1	1051*7421/3020	Lead,total	UG/L	30.0	31.5	105	90-110
02/16/98	ICV*980216PB*1	1051*7421/3020	Lead,total	UG/L	30.0	31.1	104	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	LCS*98MP27070*1	1051*7421/3020	Lead,total	UG/L	20.0	20.4	102.0	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/12/98	MB*98MP27070*1	1051*7421/3020	Lead,total	UG/L	0.08	3.0

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/12/98	**RP*26682*10**	**1051*7421/3020**	**Lead,total**	**UG/L**	**4.2**	**3.1**	**30.1**		**20**

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/12/98	SPM1*26682*10	1051	Lead,total	UG/L	4.2	20.0	17.5	87.5	75-125		
02/12/98	SPM2*26682*10	1051	Lead,total	UG/L	4.2	20.0	17.3	86.5	75-125	1.1	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	SPX*26682*10	1051*7421/3020	Lead,total	UG/L	20.0	19.3	96.5	85-115
02/16/98	SPX*26668*13	1051*7421/3020	Lead,total	UG/L	100.0	95.4	95.4	85-115

KATALYST BATCH : P40904

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40904 Analysis Date: 02/16/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
e ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CB present?	X		
CB within acceptance criteria?	X		
CV present?	X		
CV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
CS present?	X		
CS within acceptance criteria?	X		
ethod blank present?	X		
ethod blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?		X	1051*7421/3020
ample matrix spike present?	X		
ample matrix spike within acceptance criteria?	X		
Sample matrix spike duplicate present?	X		
ample matrix spike duplicate within acceptance criteria?	X		
Analytical spike present?	X		
Analytical spike within acceptance criteria?	X		

ATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40861
ANALYSIS : SW7060

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 12:14
ANALYSIS DATE/TIME : 02/11/98
EXTRACT DATE : 02/06/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26668	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26668*13	S21 MW1	02/10/98	12:27PM

KATALYST BATCH : P40861

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
2/10/98	CCB*980210AS*1	1002*7060	Arsenic,total	UG/L	ND
2/10/98	CCB*980210AS*2	1002*7060	Arsenic,total	UG/L	ND
02/11/98	CCB*980211AS*1	1002*7060	Arsenic,total	UG/L	ND
02/11/98	CCB*980211AS*2	1002*7060	Arsenic,total	UG/L	ND
2/12/98	CCB*980212AS*3	1002*7060	Arsenic,total	UG/L	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
2/10/98	CCV*980210AS*1	1002*7060	Arsenic,total	UG/L	20.0	20.7	104	90-110
2/10/98	CCV*980210AS*2	1002*7060	Arsenic,total	UG/L	20.0	20.8	104	90-110
02/11/98	CCV*980211AS*1	1002*7060	Arsenic,total	UG/L	20.0	21.0	105	90-110
02/11/98	CCV*980211AS*2	1002*7060	Arsenic,total	UG/L	20.0	21.4	107	90-110
2/12/98	CCV*980212AS*3	1002*7060	Arsenic,total	UG/L	20.0	20.0	100.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
2/10/98	ICV*980210AS*1	1002*7060	Arsenic,total	UG/L	30.0	30.8	103	90-110
2/11/98	ICV*980211AS*1	1002*7060	Arsenic,total	UG/L	30.0	30.9	103	90-110
02/12/98	ICV*980212AS*2	1002*7060	Arsenic,total	UG/L	30.0	30.2	101	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/10/98	LCS*98MP27056*1	1002*7060	Arsenic,total	UG/L	20.0	19.2	96.0	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/10/98	MB*98MP27056*1	1002*7060	Arsenic,total	UG/L	ND	2.0

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/11/98	RP*26681*3	1002*7060	Arsenic,total	UG/L	34.0	34.0	0.0		20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
2/10/98	SPM1*26681*4	1002	Arsenic,total	UG/L	9.8	20.0	19.8	99.0	75-125		
2/10/98	SPM2*26681*4	1002	Arsenic,total	UG/L	9.8	20.0	20.2	101.0	75-125	2.0	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
2/10/98	SPX*26668*13	1002*7060	Arsenic,total	UG/L	20.0	20.1	100.5	85-115
02/10/98	**SPX*26681*4**	**1002*7060**	**Arsenic,total**	**UG/L**	**20.0**	**23.7**	**118.5**	**85-115**
02/11/98	SPX*26681*3	1002*7060	Arsenic,total	UG/L	40.0	45.4	113.5	85-115
2/11/98	SPX*26681*5	1002*7060	Arsenic,total	UG/L	1000	1090	109.0	85-115
2/11/98	SPX*26681*6	1002*7060	Arsenic,total	UG/L	2000	2180	109.0	85-115
2/11/98	**SPX*26681*8**	**1002*7060**	**Arsenic,total**	**UG/L**	**100.0**	**121**	**121.0**	**85-115**

KATALYST BATCH : P40861

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40861 Analysis Date: 02/11/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCB present?	X		
CCB within acceptance criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?	X		
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X		
Analytical spike present?	X		
Analytical spike within acceptance criteria?		X	1002*7060

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40848
NALYSIS : SW7740

C TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
ATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 12:15
ANALYSIS DATE/TIME : 02/12/98
EXTRACT DATE : 02/06/98

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26668	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

AMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26668*13	S21 MW1	02/09/98	05:49PM
RP*26681*3	DA or RPn not found!		

KATALYST BATCH : P40848

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/09/98	CCB*980209SE*1	1147*7740	Selenium,total	UG/L	1.3
02/09/98	CCB*980209SE*2	1147*7740	Selenium,total	UG/L	1.2
02/12/98	CCB*980212SE*1	1147*7740	Selenium,total	UG/L	0.8

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	CCV*980209SE*1	1147*7740	Selenium,total	UG/L	20.0	21.3	107	90-110
02/09/98	CCV*980209SE*2	1147*7740	Selenium,total	UG/L	20.0	21.9	110	90-110
02/12/98	CCV*980212SE*1	1147*7740	Selenium,total	UG/L	20.0	19.4	97.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	ICV*980209SE*1	1147*7740	Selenium,total	UG/L	30.0	31.4	105	90-110
02/12/98	ICV*980212SE*1	1147*7740	Selenium,total	UG/L	30.0	31.2	104	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	LCS*98MP27056*1	1147*7740	Selenium,total	UG/L	20.0	21.7	108.5	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/09/98	MB*98MP27056*1	1147*7740	Selenium,total	UG/L	1.2	5.0

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/09/98	RP*26681*3	1147*7740	Selenium,total	UG/L	6.0	6.6	9.5		20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/09/98	SPM1*26681*4	1147	Selenium,total	UG/L	6.7	20.0	17.1	85.5	75-125		
02/09/98	SPM2*26681*4	1147	Selenium,total	UG/L	6.7	20.0	17.4	87.0	75-125	1.7	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	**SPX*26668*13**	**1147*7740**	**Selenium,total**	**UG/L**	**20.0**	**-8.8**	**N/C**	**85-115**

KATALYST BATCH : P40848

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40848 Analysis Date: 02/12/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
re ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CB present?	X		
CB within acceptance criteria?	X		
CV present?	X		
CV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?	X		
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X		
Analytical spike present?	X		
Analytical spike within acceptance criteria?		X	1147*7740

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40871
ANALYSIS : SW7470

QC TYPE : FDER/SW
ANALYST : TODD PETERSON
EXTRACTOR : TOM FERRELL
DATA ENTRY : TODD PETERSON

REPORT DATE/TIME : 03/09/98 12:15
ANALYSIS DATE/TIME : 02/11/98
EXTRACT DATE : 02/11/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26668	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26668*13	S21 MW1	02/11/98	06:46PM
DA*26668*13*C	S21 MW1	02/11/98	07:19PM

KANALYST BATCH : P40871

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/11/98	CCB*980211W*1	71890*7470	Mercury,dissolved	UG/L	0.05
02/11/98	CCB*980211W*1	71900*7470	Mercury,total	UG/L	0.05
02/11/98	CCB*980211W*2	71890*7470	Mercury,dissolved	UG/L	ND
02/11/98	CCB*980211W*2	71900*7470	Mercury,total	UG/L	ND
02/11/98	CCB*980211W*3	71890*7470	Mercury,dissolved	UG/L	ND
02/11/98	CCB*980211W*3	71900*7470	Mercury,total	UG/L	ND
02/11/98	CCB*980212*1	71890*7470	Mercury,dissolved	UG/L	NA
02/11/98	CCB*980212*1	71900*7470	Mercury,total	UG/L	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/11/98	CCV*980211W*1	71890*7470	Mercury,dissolved	UG/L	5.00	5.23	105	90-110
02/11/98	CCV*980211W*1	71900*7470	Mercury,total	UG/L	5.00	5.23	105	90-110
02/11/98	CCV*980211W*2	71890*7470	Mercury,dissolved	UG/L	5.00	5.22	104	90-110
02/11/98	CCV*980211W*2	71900*7470	Mercury,total	UG/L	5.00	5.22	104	90-110
02/11/98	CCV*980211W*3	71890*7470	Mercury,dissolved	UG/L	5.00	5.15	103	90-110
02/11/98	CCV*980211W*3	71900*7470	Mercury,total	UG/L	5.00	5.15	103	90-110
02/11/98	CCV*980212*1	71900*7470	Mercury,total	UG/L	5.00	4.82	96.4	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/11/98	ICV*980211W*1	71890*7470	Mercury,dissolved	UG/L	2.50	2.73	109	90-110
02/11/98	ICV*980211W*1	71900*7470	Mercury,total	UG/L	2.50	2.73	109	90-110
02/11/98	ICV*980212*1	71900*7470	Mercury,total	UG/L	2.50	2.67	107	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/11/98	LCS*MP27073*1	71890*7470	Mercury,dissolved	UG/L	1.00	1.14	114.0	80-120
02/11/98	LCS*MP27073*1	71900*7470	Mercury,total	UG/L	1.00	1.14	114.0	80-120
02/11/98	LCS*MP27073*2	71890*7470	Mercury,dissolved	UG/L	1.00	1.14	114.0	80-120
02/11/98	LCS*MP27073*2	71900*7470	Mercury,total	UG/L	1.00	1.14	114.0	80-120
02/11/98	LCS*MP27075*1	71900*7470	Mercury,total	UG/L	1.00	1.08	108.0	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/11/98	MB*MP27073*1	71890*7470	Mercury,dissolved	UG/L	0.04	0.20
02/11/98	MB*MP27073*1	71900*7470	Mercury,total	UG/L	0.04	0.20
02/11/98	MB*MP27075*1	71890*7470	Mercury,dissolved	UG/L	NA	0.20
02/11/98	MB*MP27075*1	71900*7470	Mercury,total	UG/L	ND	0.20

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/11/98	RP*26682*10	71900*7470	Mercury,total	UG/L	<0.20	<0.20			20

KATALYST BATCH : P40871

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40871 Analysis Date: 02/11/98 Analyst: TODD PETERSON Report Date: 03/09/98

	Yes	No
Are ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
CCB present?	X	
CCB within acceptance criteria?	X	
CCV present?	X	
CCV within acceptance criteria?	X	
ICV present?	X	
ICV within acceptance criteria?	X	
LCS present?	X	
LCS within acceptance criteria?	X	
Method blank present?	X	
Method blank within acceptance criteria?	X	
Sample replicate present?	X	
Sample replicate within acceptance criteria?	X	
Sample matrix spike present?		X
Sample matrix spike within acceptance criteria?		

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

CHAIN OF CUSTODY DOCUMENTATION

KATALYST
ANALYTICAL TECHNOLOGIES, INC.

8901 N. Industrial Road • Suite 100 • Peoria, IL 61615
Phone: (309) 589-8000 • Fax: (309) 692-5232

FOR LAB USE ONLY
Project Number: ____-____
Due Date: ____-____-____

Chain of Custody Record

18339

Company: QST
Address: 11665 Lilburn Park Rd.
St. Louis, MO 63146
Phone #: 314567-4600 Fax #: (__)____-____
P.O. #:
Client Contact: Scott George
Project # / Location: Boeing

Sample Type:
1. Water
2. Soil
3. Sludge
4. Oil
5. Tissue
Other : ____

Container Type:
P - Plastic
G - Glass
V - VOC

Preservative:
1. None 3. HNO3
2. H2SO4 4. NaOH

Sample I.D. (10 Characters ONLY)	Sample Type	Container Size	Container Type	Container No.	Sampling Date	Sampling Time	Preservative	Lab I.D.	VOC's	PAH's	Metals	Comments
S10B14'-5'	Soil	8oz 4oz	G	2	2-3-98	0850		26668 #1	X	X	X	
S10B16'-7'						0905		#2	X	X	X	
S10B23'-5'						0930		#3	X	X	X	
S10B25'-6'						0935		#4	X	X	X	
S10B43'-5'						1030		#5	X	X	X	
S26B12'-3'						1250		#6	X		X	
S26B17'-9'						1310		#7	X		X	
S26B110'-11'						1320		#8	X		X	
S26B23'-4'						1340		#9	X		X	
S26B27'-8'						1350		#10	X		X	
S26B32'-3'						1425		#11	X		X	
S26B39'-11'						1440		#12	X		X	

Relinquished By: Scott George
Date: 2-3-98
Time: 18:00

Relinquished By:
Date: -- --
Time: :

Received By:
Date: -- --
Time: :

Received For Lab By: M. Tomlinson
Date: 2-4-98
Time: 9:05 a.m.

TURNAROUND TIME:
☐ RUSH: ____ day turnaround
☐ ROUTINE

FOR LAB USE ONLY
Samples Received Chilled
☒ Yes
☐ No

Copies: White - Client Canary - Lab Receiving Pink - Lab File Goldenrod - Retained by Sampler

SPECIAL INSTRUCTIONS:

KATALYST
ANALYTICAL TECHNOLOGIES, INC.

8901 N. Industrial Road • Suite 100 • Peoria, IL 61615
Phone: (309) 589-8000 • Fax: (309) 692-5232

FOR LAB USE ONLY
Project Number: ____-____
Due Date: ____-____-____

Chain of Custody Record

18338

Company: QST
Address: 11665 Lilburn Park Rd.
St. Louis, MO 63146

Phone #: 314 567-4600 Fax #: (__)____-____
P.O. #:
Client Contact: Scott George
Project # / Location: Boeing

Sample Type:
1. Water
2. Soil
3. Sludge
4. Oil
5. Tissue
Other : _____

Container Type:
P - Plastic
G - Glass
V - VOC

Preservative:
1. None 3. HNO3
2. H2SO4 4. NaOH

Analyses

Sample I.D. (10 Characters ONLY)	Sample Type	Container Size	Container Type	Container No.	Sampling Date	Sampling Time	Preservative	Lab I.D.	Total RCRA Metals	Cyanide	Comments
~~S26~~ SEE											
S21 MW1	Water	1 qt.	G	1	2-3-98	805		26668 #13	X		Same sample collected @ different times
S21 MW1	Water	1 qt.	~~P~~	1	2-3-98	1545		#14		X	

Relinquished By: Scott George
Date: 2-3-98
Time: 1800

Relinquished By:
Date: -- --
Time: :

Received By:
Date: -- --
Time: :

Received For Lab By: M. Zimmerman
Date: 2-4-98
Time: 9:05 a.m.

TURNAROUND TIME:
☐ RUSH:_____ day turnaround
☐ ROUTINE

FOR LAB USE ONLY
Samples Received Chilled
☒ Yes
☐ No

SPECIAL INSTRUCTIONS:

Copies: White - Client Canary - Lab Receiving Pink - Lab File Goldenrod - Retained by Sampler

KATALYST

ANALYTICAL TECHNOLOGIES, INC.

March 5, 1998

Mr. Scott George
QST Environmental
11665 Lilburn Park Road
St. Louis, MO 63146

Dear Mr. George,

Katalyst Analytical Technologies, Inc., appreciates the opportunity to provide the attached report of analyses for Katalyst sample delivery group #26679, received 02/04/98 by our laboratory. This deliverable includes case narrative, tabulated results, QC summeries, dates report and chain of custody documentation.

Should you have any questions regarding this data, please contact me at (309) 589-8004.

Sincerely,

KATALYST ANALYTICAL TECHNOLOGIES, INC.

Dan Moore
Project Manager

Attachments

8901 N. Industrial Road • Suite 100 • Peoria, IL 61615-1581 • Phone: (309) 589-8000 • Fax: (309) 692-5232 • www.katalyst1.com

CASE NARRATIVE

KATALYST

ANALYTICAL TECHNOLOGIES, INC.

CASE NARRATIVE/VALIDATION REPORT

QST Environmental / Boeing
Fg# 26679

Katalyst Analytical Technologies, Inc., received 10 soil samples on 2/5/98 on ice and in good condition. The sample set was designated as one sample delivery batch, 26679 for RCRA Metals and Volatile Organics analyses.

LAB NO.	CLIENT ID	DATE COLLECTED	DATE RECEIVED
26679*1	S17B1 2.5'-4'	2/4/98	2/5/98
26679*2	S17B1 12'-13'	2/4/98	2/5/98
26679*3	S17B1 16'-17'	2/4/98	2/5/98
26679*4	S17B2 3'-4.5'	2/4/98	2/5/98
26679*5	S17B2 11'-12.5'	2/4/98	2/5/98
26679*6	S17B3 10.5'-11.5'	2/4/98	2/5/98
26679*7	S17B4 6'-7'	2/4/98	2/5/98
26679*8	S17B4 11.5'-13.5'	2/4/98	2/5/98
26679*9	S17B4 14'-16'	2/4/98	2/5/98
26679*10	S17B1 2.5'-4'D	2/4/98	2/5/98

RCRA Metals (SW 846 6010/7470) Project Summary:

The samples were digested and analyzed within method holding-times.

RCRA Metals (SW 846 6010/7470) QC Summary:

All holding time criteria were met.

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RCRA Metals (SW 846 6010/7470) QC Summary Cont.:

All initial and continuing calibration standards met the criteria of the methods.

The laboratory method blanks did not contain any target analytes of interest.

The Laboratory Control Sample (LCS) demonstrated recoveries within method specified limits.

The replicates were within method specified limits with the exception of barium, chromium, lead, and selenium. The replicates were not within method specified limits due to the sample containing high levels or trace concentrations of the element. Post digestion spikes were performed.

Several analyses required serial dilutions to be performed. In some instances, the serial dilution did not meet method acceptance criteria. Post digestion spikes and the method of standard additions were utilized to verify matrix interference and quantify sample and QC results, where applicable.

The associated matrix spike and duplicates (MS/MSD) were performed on samples 26679*2, 26679*11, and 26682*2 from this project. All MS/MSD recoveries were within method specified limits except for lead, arsenic, selenium, and mercury in selected MS/MSDs.. The lead and arsenic MS/MSD (26679*2 and 26679*11) recoveries are not within method specified limits due to the concentrations of these elements in the associate sample overwhelming the amount spiked. The selenium MS/MSD recoveries associated with sample 26679*11 were below method specified limits. A post digestion spike was performed which was within method specified limits

Volatile Organics (8240) Project Summary:

The samples were analyzed on 02/17 & 18/98, within the method specified hold-time. Dilutions analyses for cis and trans-1,2-dichloroethene, tetrachloroethane, acetone and total xylenes were performed on selected samples outside of the EPA recommended hold-time. The following samples were analyzed at dilutions out of hold-time: 26679*1D, *2D, *3D, *4D, *6D, *7D, *8D, *9D, *10D, and *11D.

Volatile Organics (8240) QC Summary:

All holding time criteria were met except as noted above.

The laboratory method blank did not contain any analytes of interest above the reporting limit.

All initial and continuing calibration standards met the criteria of the method.

The surrogate spike recoveries were within method specified limits except for the following: Bromofluorobenzene was greater than method specified limits in samples 26679*2D, *3D, *4D, *6D, *7D, *10D, *11D, and less than method specified limits in 26679*1D; Toluene-d8 recoveries were greater than method specified limits in 26679*1, *8, *9, *10 and less than method specified limits in 26679*1D, *2D, and *3D; 1,2-dichloroethane-d4 recovery was greater than method specified limits in 26679*7 and less than specified limits in 26679*1D, *2D, and *3D.

All spike recoveries in the laboratory control sample were within method specified limits.

The associated matrix spike and duplicate were performed on samples 26653*11 and 26688*2 from this project. The matrix spike and duplicate recoveries were within method specified limits except for benzene in 26688*2MS which

Volatile Organics (8240) QC Summary Cont.:

was slightly above method specified limits. The laboratory control sample verified instrument and method performance.

Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Signature: _____ Name: Daniel J. Moore

Date June 11, 1998 Title: Project Manager

Signature: _____ Name: Michael Travis

Date June 11, 1998 Title: QA Manager

ANALYTICAL RESULTS

PROJECT NUMBER 110S01 5100 PROJECT NAME QST ST. LOUIS/BOEING
FIELD GROUP LAB COORDINATOR Daniel Moore

CLIENT SAMPLE ID'S:			S17B1 2.5-4'	S17B1 2.5-4'DL	S17B1 12'-13'
FIELD GROUP:			26679	26679	26679
SEQUENCE #:			1	1 DL	2
DATE COLLECTED:			02/04/98	02/04/98	02/04/98
TIME COLLECTED:			09:40	09:40	10:05
PARAMETERS	UNITS	METHOD			
Barium	MG/KG-DRY	SW6010	210	NA	100
Cadmium	MG/KG-DRY	SW6010	<0.63	NA	0.65
Chromium	MG/KG-DRY	SW6010	19	NA	21
Silver	MG/KG-DRY	SW6010	<1.3	NA	<1.3
Arsenic	MG/KG-DRY	SW7060	10	NA	20
Lead	MG/KG-DRY	SW7421	15	NA	13
Mercury	MG/KG-DRY	SW7471	<0.030	NA	0.050
Selenium	MG/KG-DRY	SW7740	1.2	NA	1.0
Moisture	%	E160.3	21.8	NA	21.7
Acetone	UG/KG-DRY	SW8240	240	NA	21
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	1700E	<3200X	22
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	9.6	NA	<6.4
Tetrachloroethene	UG/KG-DRY	SW8240	31000E	24000X	2800E
Xylenes (total)	UG/KG-DRY	SW8240	41	NA	<6.4

DL - Dilution
E - Exceeded Calibration Range
X - Please see case narrative

CLIENT SAMPLE ID'S:			S17B1 12'-13'DL	S17B1 16'-17'	S17B1 16'-17'DL
FIELD GROUP:			26679	26679	26679
SEQUENCE #:			2 DL	3	3 DL
DATE COLLECTED:			02/04/98	02/04/98	02/04/98
TIME COLLECTED:			10:05	10:25	10:25
PARAMETERS	UNITS	METHOD			
Barium	MG/KG-DRY	SW6010	NA	110	NA
Cadmium	MG/KG-DRY	SW6010	NA	<0.68	NA
Chromium	MG/KG-DRY	SW6010	NA	21	NA
Silver	MG/KG-DRY	SW6010	NA	<1.4	NA
Arsenic	MG/KG-DRY	SW7060	NA	15	NA
Lead	MG/KG-DRY	SW7421	NA	11	NA
Mercury	MG/KG-DRY	SW7471	NA	0.56	NA
Selenium	MG/KG-DRY	SW7740	NA	<0.68	NA
Moisture	%	E160.3	NA	26.8	NA
Acetone	UG/KG-DRY	SW8240	NA	20	NA
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	NA	88	NA
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	NA	<6.8	NA
Tetrachloroethene	UG/KG-DRY	SW8240	9100X	16000E	58000X
Xylenes (total)	UG/KG-DRY	SW8240	NA	7.7	NA

DL - Dilution
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CLIENT SAMPLE ID'S:			S17B2 3'-4.5'	S17B2 3'-4.5'DL	S17B2 11'-12.5'
FIELD GROUP:			26679	26679	26679
SEQUENCE #:			4	4 DL	5
DATE COLLECTED:			02/04/98	02/04/98	02/04/98
TIME COLLECTED:			11:10	11:10	11:35
PARAMETERS	UNITS	METHOD			
Barium	MG/KG-DRY	SW6010	310	NA	80
Cadmium	MG/KG-DRY	SW6010	0.88	NA	<0.63
Chromium	MG/KG-DRY	SW6010	22	NA	12
Silver	MG/KG-DRY	SW6010	<1.3	NA	<1.3
Arsenic	MG/KG-DRY	SW7060	10	NA	11
Lead	MG/KG-DRY	SW7421	11	NA	11
Mercury	MG/KG-DRY	SW7471	0.54	NA	0.52
Selenium	MG/KG-DRY	SW7740	0.86	NA	<0.63
Moisture	%	E160.3	23.2	NA	21.6
Acetone	UG/KG-DRY	SW8240	25	NA	<13
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.5	NA	46
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.5	NA	<6.4
Tetrachloroethene	UG/KG-DRY	SW8240	4700E	18000X	1400E
Xylenes (total)	UG/KG-DRY	SW8240	<6.5	NA	<6.4

DL - Dilution
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X - Please see case narrative

CLIENT SAMPLE ID'S:			S17B2 11'-12.5'DL	S17B3 10.5'-11.5'	S17B3 10.5'-11.5'DL
FIELD GROUP:			26679	26679	26679
SEQUENCE #:			5 DL	6	6 DL
DATE COLLECTED:			02/04/98	02/04/98	02/04/98
TIME COLLECTED:			11:35	13:50	13:50
PARAMETERS	UNITS	METHOD			
Barium	MG/KG-DRY	SW6010	NA	170	NA
Cadmium	MG/KG-DRY	SW6010	NA	<0.66	NA
Chromium	MG/KG-DRY	SW6010	NA	14	NA
Silver	MG/KG-DRY	SW6010	NA	<1.3	NA
Arsenic	MG/KG-DRY	SW7060	NA	<6.6	NA
Lead	MG/KG-DRY	SW7421	NA	8.9	NA
Mercury	MG/KG-DRY	SW7471	NA	0.53	NA
Selenium	MG/KG-DRY	SW7740	NA	<0.66	NA
Moisture	%	E160.3	NA	25.4	NA
Acetone	UG/KG-DRY	SW8240	NA	16	NA
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	NA	24	NA
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	NA	<6.7	NA
Tetrachloroethene	UG/KG-DRY	SW8240	1100X	780E	3000X
Xylenes (total)	UG/KG-DRY	SW8240	NA	<6.7	NA

DL - Dilution
E - Exceeded Calibration Range
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PROJECT NUMBER 110S01 5100 PROJECT NAME QST ST. LOUIS/BOEING
FIELD GROUP LAB COORDINATOR Daniel Moore

CLIENT SAMPLE ID'S:			S17B4 6'-7'	S17B4 6'-7'DL	S17B4 11.5-13.5'
FIELD GROUP:			26679	26679	26679
SEQUENCE #:			7	7 DL	8
DATE COLLECTED:			02/04/98	02/04/98	02/04/98
TIME COLLECTED:			14:45	14:45	15:20
PARAMETERS	UNITS	METHOD			
Barium	MG/KG-DRY	SW6010	130	NA	79
Cadmium	MG/KG-DRY	SW6010	<0.67	NA	<0.72
Chromium	MG/KG-DRY	SW6010	21	NA	13
Silver	MG/KG-DRY	SW6010	<1.3	NA	<1.4
Arsenic	MG/KG-DRY	SW7060	20	NA	<7.2
Lead	MG/KG-DRY	SW7421	16	NA	9.8
Mercury	MG/KG-DRY	SW7471	0.55	NA	0.55
Selenium	MG/KG-DRY	SW7740	<0.67	NA	0.72
Moisture	%	E160.3	25.7	NA	31.0
Acetone	UG/KG-DRY	SW8240	27	NA	<14
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	13	NA	760E
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.7	NA	<7.2
Tetrachloroethene	UG/KG-DRY	SW8240	970E	12000X	320000E
Xylenes (total)	UG/KG-DRY	SW8240	<6.7	NA	180

DL - Dilution
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CLIENT SAMPLE ID'S:			S17B4 11.5-13.5'DL	S17B4 14'-16'	S17B4 14'-16'DL
FIELD GROUP:			26679	26679	26679
SEQUENCE #:			8 DL	9	9 DL
DATE COLLECTED:			02/04/98	02/04/98	02/04/98
TIME COLLECTED:			15:20	15:30	15:30
PARAMETERS	UNITS	METHOD			
Barium	MG/KG-DRY	SW6010	NA	86	NA
Cadmium	MG/KG-DRY	SW6010	NA	<0.75	NA
Chromium	MG/KG-DRY	SW6010	NA	13	NA
Silver	MG/KG-DRY	SW6010	NA	<1.5	NA
Arsenic	MG/KG-DRY	SW7060	NA	9.7	NA
Lead	MG/KG-DRY	SW7421	NA	7.5	NA
Mercury	MG/KG-DRY	SW7471	NA	0.55	NA
Selenium	MG/KG-DRY	SW7740	NA	<0.74	NA
Moisture	%	E160.3	NA	33.5	NA
Acetone	UG/KG-DRY	SW8240	NA	400	NA
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	NA	180000E	11,900X
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	NA	3300E	<19000
Tetrachloroethene	UG/KG-DRY	SW8240	200000	390000E	240000
Xylenes (total)	UG/KG-DRY	SW8240	NA	2100E	<19000

DL - Dilution
E - Exceeded Calibration Range
X - Please see case narrative

CLIENT SAMPLE ID'S:			S17B1 2.5'-4'D	S17B1 2.5'-4'DL	S17B5 14'-16'
FIELD GROUP:			26679	26679	26679
SEQUENCE #:			10	10 DL	11
DATE COLLECTED:			02/04/98	02/04/98	02/04/98
TIME COLLECTED:			09:40	09:40	15:30
PARAMETERS	UNITS	METHOD			
Barium	MG/KG-DRY	SW6010	160	NA	82
Cadmium	MG/KG-DRY	SW6010	<0.64	NA	<0.76
Chromium	MG/KG-DRY	SW6010	18	NA	12
Silver	MG/KG-DRY	SW6010	<1.3	NA	<1.5
Arsenic	MG/KG-DRY	SW7060	<6.4	NA	<7.6
Lead	MG/KG-DRY	SW7421	8.5	NA	9.0
Mercury	MG/KG-DRY	SW7471	0.48	NA	0.050
Selenium	MG/KG-DRY	SW7740	1.4	NA	1.6
Moisture	%	E160.3	22.7	NA	34.7
Acetone	UG/KG-DRY	SW8240	1400E	<1600X	<77
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	5100E	<810X	280
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	36	NA	<38
Tetrachloroethene	UG/KG-DRY	SW8240	130000E	32000X	3400E
Xylenes (total)	UG/KG-DRY	SW8240	230	NA	<38

DL - Dilution
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X - Please see case narrative

CLIENT SAMPLE ID'S:	S17B5 14'-16'DL
FIELD GROUP:	26679
SEQUENCE #:	11 DL
DATE COLLECTED:	02/04/98
TIME COLLECTED:	15:30

PARAMETERS	UNITS	METHOD	
Barium	MG/KG-DRY	SW6010	NA
Cadmium	MG/KG-DRY	SW6010	NA
Chromium	MG/KG-DRY	SW6010	NA
Silver	MG/KG-DRY	SW6010	NA
Arsenic	MG/KG-DRY	SW7060	NA
Lead	MG/KG-DRY	SW7421	NA
Mercury	MG/KG-DRY	SW7471	NA
Selenium	MG/KG-DRY	SW7740	NA
Moisture	%	E160.3	NA
Acetone	UG/KG-DRY	SW8240	NA
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	NA
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	NA
Tetrachloroethene	UG/KG-DRY	SW8240	3600X
Xylenes (total)	UG/KG-DRY	SW8240	NA

DL - Dilution
X - Please see case narrative

Katalyst Analytical Technologies, Inc.
QST ST. LOUIS 26679 DATES REPORT

SAMPLE	STATION ID	COLLECT. TIME	RECEIPT	CLASSIFICATION	LEACHATE	EXTRACTION	DAYS, ACT/HT ANALYSIS	LCH	EXT	ANL	BATCH
26679*1	S17B1 2.5-4'	02/04/98 09:40A	02/04/98	Barium-ICP	NA	NA	02/17/98 04:18P	NA	NA	13/180	P40917
				Cadmium-ICP	NA	NA	02/17/98 04:18P	NA	NA	13/180	P40917
				Chromium-ICP	NA	NA	02/17/98 04:18P	NA	NA	13/180	P40917
				Lead-GFAA	NA	NA	02/16/98 06:43P	NA	NA	12/180	P40912
				Silver-ICP	NA	NA	02/18/98 10:18A	NA	NA	14/180	P40919
				Arsenic-GFAA	NA	NA	02/17/98 06:34P	NA	NA	13/180	P40940
				Selenium-GFAA	NA	NA	02/12/98 03:52P	NA	NA	8/180	P40911
				Mercury	NA	NA	02/09/98 12:59P	NA	NA	5/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	5/180	P40844
				Volatiles	NA	NA	02/17/98 08:08P	NA	NA	13/14	P41047
26679*2	S17B1 12'-13'	02/04/98 10:05A	02/04/98	Barium-ICP	NA	NA	02/17/98 04:21P	NA	NA	13/180	P40917
				Cadmium-ICP	NA	NA	02/17/98 04:21P	NA	NA	13/180	P40917
				Chromium-ICP	NA	NA	02/17/98 04:21P	NA	NA	13/180	P40917
				Lead-GFAA	NA	NA	02/16/98 07:06P	NA	NA	12/180	P40912
				Silver-ICP	NA	NA	02/18/98 10:22A	NA	NA	14/180	P40919
				Arsenic-GFAA	NA	NA	02/17/98 06:45P	NA	NA	13/180	P40940
				Selenium-GFAA	NA	NA	02/12/98 04:05P	NA	NA	8/180	P40911
				Mercury	NA	NA	02/11/98 04:04P	NA	NA	7/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	5/180	P40844
				Volatiles	NA	NA	02/17/98 08:38P	NA	NA	13/14	P41047
26679*3	S17B1 16'-17'	02/04/98 10:25A	02/04/98	Barium-ICP	NA	NA	02/17/98 04:49P	NA	NA	13/180	P40917
				Cadmium-ICP	NA	NA	02/17/98 04:49P	NA	NA	13/180	P40917
				Chromium-ICP	NA	NA	02/17/98 04:49P	NA	NA	13/180	P40917
				Lead-GFAA	NA	NA	02/16/98 07:35P	NA	NA	12/180	P40912
				Silver-ICP	NA	NA	02/18/98 10:49A	NA	NA	14/180	P40919
				Arsenic-GFAA	NA	NA	02/18/98 01:11P	NA	NA	14/180	P40940
				Selenium-GFAA	NA	NA	02/12/98 06:44P	NA	NA	8/180	P40911
				Mercury	NA	NA	02/09/98 01:11P	NA	NA	5/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	5/180	P40844
				Volatiles	NA	NA	02/17/98 10:06P	NA	NA	13/14	P41047
26679*4	S17B2 3'-4.5'	02/04/98 11:10A	02/04/98	Barium-ICP	NA	NA	02/17/98 04:52P	NA	NA	13/180	P40917
				Cadmium-ICP	NA	NA	02/17/98 04:52P	NA	NA	13/180	P40917
				Chromium-ICP	NA	NA	02/17/98 04:52P	NA	NA	13/180	P40917
				Lead-GFAA	NA	NA	02/16/98 07:46P	NA	NA	12/180	P40912
				Silver-ICP	NA	NA	02/18/98 10:53A	NA	NA	13/180	P40919
				Arsenic-GFAA	NA	NA	02/18/98 01:23P	NA	NA	14/180	P40940
				Selenium-GFAA	NA	NA	02/12/98 06:56P	NA	NA	8/180	P40911
				Mercury	NA	NA	02/09/98 01:13P	NA	NA	5/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	5/180	P40844
				Volatiles	NA	NA	02/17/98 10:36P	NA	NA	13/14	P41047
26679*5	S17B2 11'-12.5'	02/04/98 11:35A	02/04/98	Barium-ICP	NA	NA	02/17/98 04:55P	NA	NA	13/180	P40917
				Cadmium-ICP	NA	NA	02/17/98 04:55P	NA	NA	13/180	P40917
				Chromium-ICP	NA	NA	02/17/98 04:55P	NA	NA	13/180	P40917
				Lead-GFAA	NA	NA	02/16/98 08:09P	NA	NA	12/180	P40912
				Silver-ICP	NA	NA	02/18/98 10:56A	NA	NA	13/180	P40919
				Arsenic-GFAA	NA	NA	02/18/98 01:36P	NA	NA	14/180	P40940
				Selenium-GFAA	NA	NA	02/12/98 07:08P	NA	NA	8/180	P40911
				Mercury	NA	NA	02/09/98 01:16P	NA	NA	5/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	5/180	P40844
				Volatiles	NA	NA	02/17/98 11:06P	NA	NA	13/14	P41047
26679*6	S17B3 10.5'-11.5'	02/04/98 01:50P	02/04/98	Barium-ICP	NA	NA	02/17/98 04:59P	NA	NA	13/180	P40917

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

SAMPLE	STATION ID	COLLECT. TIME	RECEIPT	CLASSIFICATION	LEACHATE	EXTRACTION	DAYS, ACT/HT ANALYSIS	LCH	EXT	ANL	BATCH
				Cadmium-ICP	NA	NA	02/17/98 04:59P	NA	NA	13/180	P40917
				Chromium-ICP	NA	NA	02/17/98 04:59P	NA	NA	13/180	P40917
				Lead-GFAA	NA	NA	02/16/98 08:20P	NA	NA	12/180	P40912
				Silver-ICP	NA	NA	02/18/98 10:59A	NA	NA	13/180	P40919
				Arsenic-GFAA	NA	NA	02/18/98 01:59P	NA	NA	14/180	P40940
				Selenium-GFAA	NA	NA	02/12/98 07:32P	NA	NA	8/180	P40911
				Mercury	NA	NA	02/09/98 01:23P	NA	NA	4/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	5/180	P40844
26679*7	S17B4 6'-7'	02/04/98 02:45P	02/04/98	Volatiles	NA	NA	02/17/98 11:35P	NA	NA	13/14	P41047
				Barium-ICP	NA	NA	02/17/98 05:09P	NA	NA	13/180	P40917
				Cadmium-ICP	NA	NA	02/17/98 05:09P	NA	NA	13/180	P40917
				Chromium-ICP	NA	NA	02/17/98 05:09P	NA	NA	13/180	P40917
				Lead-GFAA	NA	NA	02/16/98 08:32P	NA	NA	12/180	P40912
				Silver-ICP	NA	NA	02/18/98 11:10A	NA	NA	13/180	P40919
				Arsenic-GFAA	NA	NA	02/18/98 02:11P	NA	NA	13/180	P40940
				Selenium-GFAA	NA	NA	02/12/98 07:44P	NA	NA	8/180	P40911
				Mercury	NA	NA	02/09/98 01:25P	NA	NA	4/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	5/180	P40844
26679*8	S17B4 11.5-13.5'	02/04/98 03:20P	02/04/98	Volatiles	NA	NA	02/18/98 12:04A	NA	NA	13/14	P41047
				Barium-ICP	NA	NA	02/17/98 05:13P	NA	NA	13/180	P40917
				Cadmium-ICP	NA	NA	02/17/98 05:13P	NA	NA	13/180	P40917
				Chromium-ICP	NA	NA	02/17/98 05:13P	NA	NA	13/180	P40917
				Lead-GFAA	NA	NA	02/16/98 08:43P	NA	NA	12/180	P40912
				Silver-ICP	NA	NA	02/18/98 11:13A	NA	NA	13/180	P40919
				Arsenic-GFAA	NA	NA	02/13/98 02:58A	NA	NA	8/180	P40940
				Selenium-GFAA	NA	NA	02/12/98 07:57P	NA	NA	8/180	P40911
				Mercury	NA	NA	02/09/98 01:27P	NA	NA	4/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	4/180	P40844
26679*9	S17B4 14'-16'	02/04/98 03:30P	02/04/98	Volatiles	NA	NA	02/18/98 12:34A	NA	NA	13/14	P41047
				Barium-ICP	NA	NA	02/17/98 05:16P	NA	NA	13/180	P40917
				Cadmium-ICP	NA	NA	02/17/98 05:16P	NA	NA	13/180	P40917
				Chromium-ICP	NA	NA	02/17/98 05:16P	NA	NA	13/180	P40917
				Lead-GFAA	NA	NA	02/16/98 08:55P	NA	NA	12/180	P40912
				Silver-ICP	NA	NA	02/18/98 11:17A	NA	NA	13/180	P40919
				Arsenic-GFAA	NA	NA	02/18/98 02:23P	NA	NA	13/180	P40940
				Selenium-GFAA	NA	NA	02/12/98 08:09P	NA	NA	8/180	P40911
				Mercury	NA	NA	02/09/98 01:29P	NA	NA	4/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	4/180	P40844
26679*10	S17B1 2.5'-4'D	02/04/98 09:40A	02/04/98	Volatiles	NA	NA	02/18/98 03:13P	NA	NA	13/14	P41047
				Barium-ICP	NA	NA	02/17/98 05:20P	NA	NA	13/180	P40917
				Cadmium-ICP	NA	NA	02/17/98 05:20P	NA	NA	13/180	P40917
				Chromium-ICP	NA	NA	02/17/98 05:20P	NA	NA	13/180	P40917
				Lead-GFAA	NA	NA	02/16/98 09:18P	NA	NA	12/180	P40912
				Silver-ICP	NA	NA	02/18/98 11:20A	NA	NA	14/180	P40919
				Arsenic-GFAA	NA	NA	02/18/98 02:35P	NA	NA	14/180	P40940
				Selenium-GFAA	NA	NA	02/16/98 09:25P	NA	NA	12/180	P40911
				Mercury	NA	NA	02/09/98 01:32P	NA	NA	5/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	5/180	P40844
26679*11	S17B5 14'-16'	02/04/98 03:30P	02/04/98	Volatiles	NA	NA	02/18/98 03:43P	NA	NA	14/14	P41047
				Barium-ICP	NA	NA	02/17/98 06:15P	NA	NA	13/180	P40917
				Cadmium-ICP	NA	NA	02/17/98 06:15P	NA	NA	13/180	P40917

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

QST ST. LOUIS 26679 DATES REPORT

SAMPLE	STATION ID	COLLECT. TIME	RECEIPT	CLASSIFICATION	LEACHATE	EXTRACTION	DAYS, ACT/HT ANALYSIS	LCH	EXT	ANL	BATCH
				Chromium-ICP	NA	NA	02/17/98 06:15P	NA	NA	13/180	P40917
				Lead-GFAA	NA	NA	02/17/98 02:37P	NA	NA	12/180	P40912
				Silver-ICP	NA	NA	02/18/98 11:24A	NA	NA	13/180	P40919
				Arsenic-GFAA	NA	NA	02/17/98 04:01P	NA	NA	13/180	P40939
				Selenium-GFAA	NA	NA	02/16/98 07:22P	NA	NA	12/180	P40906
				Mercury	NA	NA	02/11/98 04:14P	NA	NA	7/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	4/180	P40844
				Volatiles	NA	NA	02/18/98 04:13P	NA	NA	14/14	P41047

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

SAMPLE	SITE ID	ANALYTE	DIL	BATCH
26679*1	S17B1 2.5-4'	Lead	5	P40912
26679*1 DL	S17B1 2.5-4'	Volatiles	500	P41047
26679*2	S17B1 12'-13'	Lead	5	P40912
26679*2 DL	S17B1 12'-13'	Volatiles	125	P41047
26679*3	S17B1 16'-17'	Lead	5	P40912
26679*3 DL	S17B1 16'-17'	Volatiles	625	P41047
26679*4	S17B2 3'-4.5'	Lead	5	P40912
26679*4 DL	S17B2 3'-4.5'	Volatiles	125	P41047
26679*5	S17B2 11'-12.5'	Lead	5	P40912
26679*5 DL	S17B2 11'-12.5'	Volatiles	5	P41047
26679*6	S17B3 10.5'-11.5'	Lead	5	P40912
26679*6 DL	S17B3 10.5'-11.5'	Volatiles	125	P41047
26679*7	S17B4 6'-7'	Lead	5	P40912
26679*7 DL	S17B4 6'-7'	Volatiles	125	P41047
26679*8	S17B4 11.5-13.5'	Lead	5	P40912
26679*8 DL	S17B4 11.5-13.5'	Volatiles	5000	P41047
26679*9	S17B4 14'-16'	Lead	5	P40912
		Volatiles	5	P41047
26679*9 DL	S17B4 14'-16'	Volatiles	2500	P41047
26679*10	S17B1 2.5'-4'D	Lead	5	P40912
		Volatiles	5	P41047
26679*10 DL	S17B1 2.5'-4'D	Volatiles	125	P41047
26679*11	S17B5 14'-16'	Lead	5	P40912
		Volatiles	5	P41047
26679*11 DL	S17B5 14'-16'	Volatiles	125	P41047

QUALITY CONTROL SUMMARY REPORTS BY ANALYTICAL BATCH

KATALYST BATCH : P40917
ANALYSIS : SW6010

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : ICP UPLOAD

REPORT DATE/TIME : 03/09/98 11:02
ANALYSIS DATE/TIME : 02/17/98
EXTRACT DATE : 02/17/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26679	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26679*1	S17B1 2.5-4'	02/17/98	04:18PM
DA*26679*2	S17B1 12'-13'	02/17/98	04:21PM
DA*26679*3	S17B1 16'-17'	02/17/98	04:49PM
DA*26679*4	S17B2 3'-4.5'	02/17/98	04:52PM
DA*26679*5	S17B2 11'-12.5'	02/17/98	04:55PM
DA*26679*6	S17B3 10.5'-11.	02/17/98	04:59PM
DA*26679*7	S17B4 6'-7'	02/17/98	05:09PM
DA*26679*8	S17B4 11.5-13.5	02/17/98	05:13PM
DA*26679*9	S17B4 14'-16'	02/17/98	05:16PM
DA*26679*10	S17B1 2.5'-4'D	02/17/98	05:20PM
DA*26679*11	S17B5 14'-16'	02/17/98	06:15PM

KATALYST BATCH : P40917

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/17/98	CCB*980217*1	1008*6010/3050	Barium	MG/KG-	0.0004
02/17/98	CCB*980217*1	1028*6010/3050	Cadmium	MG/KG-	ND
02/17/98	CCB*980217*1	1029*6010/3050	Chromium	MG/KG-	ND
02/17/98	CCB*980217*2	1008*6010/3050	Barium	MG/KG-	0.0002
02/17/98	CCB*980217*2	1028*6010/3050	Cadmium	MG/KG-	ND
02/17/98	CCB*980217*2	1029*6010/3050	Chromium	MG/KG-	ND
02/17/98	CCB*980217*3	1008*6010/3050	Barium	MG/KG-	0.0003
02/17/98	CCB*980217*3	1028*6010/3050	Cadmium	MG/KG-	ND
02/17/98	CCB*980217*3	1029*6010/3050	Chromium	MG/KG-	ND
02/17/98	CCB*980217*4	1008*6010/3050	Barium	MG/KG-	0.001
02/17/98	CCB*980217*4	1028*6010/3050	Cadmium	MG/KG-	ND
02/17/98	CCB*980217*4	1029*6010/3050	Chromium	MG/KG-	0.002
02/17/98	CCB*980217*5	1008*6010/3050	Barium	MG/KG-	0.0008
02/17/98	CCB*980217*5	1028*6010/3050	Cadmium	MG/KG-	0.0009
02/17/98	CCB*980217*5	1029*6010/3050	Chromium	MG/KG-	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	CCV*980217*1	1008*6010/3050	Barium	MG/KG-	4.00	3.95	98.8	90-110
02/17/98	CCV*980217*1	1028*6010/3050	Cadmium	MG/KG-	4.00	3.92	98.0	90-110
02/17/98	CCV*980217*1	1029*6010/3050	Chromium	MG/KG-	4.00	3.83	95.8	90-110
02/17/98	CCV*980217*2	1008*6010/3050	Barium	MG/KG-	4.00	3.86	96.5	90-110
02/17/98	CCV*980217*2	1028*6010/3050	Cadmium	MG/KG-	4.00	3.94	98.5	90-110
02/17/98	CCV*980217*2	1029*6010/3050	Chromium	MG/KG-	4.00	3.85	96.3	90-110
02/17/98	CCV*980217*3	1008*6010/3050	Barium	MG/KG-	4.00	3.95	98.8	90-110
02/17/98	CCV*980217*3	1028*6010/3050	Cadmium	MG/KG-	4.00	3.99	99.8	90-110
02/17/98	CCV*980217*3	1029*6010/3050	Chromium	MG/KG-	4.00	3.90	97.5	90-110
02/17/98	CCV*980217*4	1008*6010/3050	Barium	MG/KG-	4.00	3.92	98.0	90-110
02/17/98	CCV*980217*4	1028*6010/3050	Cadmium	MG/KG-	4.00	3.99	99.8	90-110
02/17/98	CCV*980217*4	1029*6010/3050	Chromium	MG/KG-	4.00	3.88	97.0	90-110
02/17/98	CCV*980217*5	1008*6010/3050	Barium	MG/KG-	4.00	3.86	96.5	90-110
02/17/98	CCV*980217*5	1028*6010/3050	Cadmium	MG/KG-	4.00	3.93	98.3	90-110
02/17/98	CCV*980217*5	1029*6010/3050	Chromium	MG/KG-	4.00	3.83	95.8	90-110
02/17/98	CCV*980217*6	1008*6010/3050	Barium	MG/KG-	4.00	3.90	97.5	90-110
02/17/98	CCV*980217*6	1028*6010/3050	Cadmium	MG/KG-	4.00	3.98	99.5	90-110
02/17/98	CCV*980217*6	1029*6010/3050	Chromium	MG/KG-	4.00	3.89	97.3	90-110

Interference Check Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	ICS*AB*1	1008*6010/3050	Barium	MG/KG-	0.500	0.473	94.6	80-120
02/17/98	ICS*AB*1	1028*6010/3050	Cadmium	MG/KG-	1.00	0.891	89.1	80-120
02/17/98	ICS*AB*1	1029*6010/3050	Chromium	MG/KG-	0.500	0.459	91.8	80-120
02/17/98	ICS*AB*2	1008*6010/3050	Barium	MG/KG-	0.500	0.468	93.6	80-120
02/17/98	ICS*AB*2	1028*6010/3050	Cadmium	MG/KG-	1.00	0.889	88.9	80-120
02/17/98	ICS*AB*2	1029*6010/3050	Chromium	MG/KG-	0.500	0.459	91.8	80-120

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	ICV*980217*1	1008*6010/3050	Barium	MG/KG-	6.00	5.81	96.8	90-110
02/17/98	ICV*980217*1	1028*6010/3050	Cadmium	MG/KG-	6.00	5.82	97.0	90-110
02/17/98	ICV*980217*1	1029*6010/3050	Chromium	MG/KG-	6.00	5.68	94.7	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	LCS*98MP27087*1	1008*6010/3050	Barium	MG/KG-	500	469	93.8	80-120
02/17/98	LCS*98MP27087*1	1028*6010/3050	Cadmium	MG/KG-	500	467	93.4	80-120
02/17/98	LCS*98MP27087*1	1029*6010/3050	Chromium	MG/KG-	500	458	91.6	80-120
02/17/98	LCS*98MP27091*1	1029*6010/3050	Chromium	MG/KG-	500	476	95.2	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/17/98	MB*98MP27087*1	1008*6010/3050	Barium	MG/KG-	ND	1.00
02/17/98	MB*98MP27087*1	1028*6010/3050	Cadmium	MG/KG-	ND	0.500
02/17/98	MB*98MP27087*1	1029*6010/3050	Chromium	MG/KG-	0.645	1.00
02/17/98	MB*98MP27091*1	1008*6010/3050	Barium	MG/KG-	NA	1.00
02/17/98	MB*98MP27091*1	1028*6010/3050	Cadmium	MG/KG-	NA	0.500
02/17/98	MB*98MP27091*1	1029*6010/3050	Chromium	MG/KG-	0.080	1.00

KATALYST BATCH : P40917

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/17/98	**RP*26679*2**	**1008*6010/3050**	**Barium**	**MG/KG-**	**101**	**70.1**	**36.1**		**20**
02/17/98	RP*26679*2	1028*6010/3050	Cadmium	MG/KG-	0.646	<0.632			20
02/17/98	**RP*26679*2**	**1029*6010/3050**	**Chromium**	**MG/KG-**	**21.4**	**14.3**	**39.8**		**20**
02/17/98	RP*26682*2	1029*6010/3050	Chromium	MG/KG-	10.9	11.7	7.10		20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/17/98	SPM1*26679*2	1008	Barium	MG/KG-	101	632	585	92.6	75-125		
02/17/98	SPM1*26679*2	1028	Cadmium	MG/KG-	0.646	632	552	87.3	75-125		
02/17/98	SPM1*26679*2	1029	Chromium	MG/KG-	21.4	632	549	86.9	75-125		
02/17/98	SPM2*26679*2	1008	Barium	MG/KG-	101	636	604	95.0	75-125	2.60	20
02/17/98	SPM2*26679*2	1028	Cadmium	MG/KG-	0.646	636	559	87.9	75-125	0.700	20
02/17/98	SPM2*26679*2	1029	Chromium	MG/KG-	21.4	636	560	88.1	75-125	1.40	20
02/17/98	SPM1*26682*2	1029	Chromium	MG/KG-	10.9	626	563	89.9	75-125		
02/17/98	SPM2*26682*2	1029	Chromium	MG/KG-	10.9	627	553	88.2	75-125	1.90	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	SPX*26679*2	1008*6010/3050	Barium	MG/KG-	635	610	96.1	75-125
02/17/98	SPX*26679*2	1028*6010/3050	Cadmium	MG/KG-	635	589	92.8	75-125
02/17/98	SPX*26679*2	1029*6010/3050	Chromium	MG/KG-	635	587	92.4	75-125
02/17/98	SPX*26682*2	1029*6010/3050	Chromium	MG/KG-	627	588	93.8	75-125

KATALYST BATCH : P40917

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40917 Analysis Date: 02/17/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
Were ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
ICB present?	X		
ICB within acceptance criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICS present?	X		
ICS within acceptance criteria?	X		
PBV present?	X		
PBV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?		X	1008*6010/3050 1029*6010/3050
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?	X		
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X		
Analytical spike present?	X		
Analytical spike within acceptance criteria?	X		

BATCH OVERRIDE BY: TROY AVERY 1006

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40912
ANALYSIS : SW7421

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 11:02
ANALYSIS DATE/TIME : 02/17/98
EXTRACT DATE : 02/09/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26679	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26679*1	S17B1 2.5-4'	02/16/98	06:43PM
DA*26679*2	S17B1 12'-13'	02/16/98	07:06PM
DA*26679*3	S17B1 16'-17'	02/16/98	07:35PM
DA*26679*4	S17B2 3'-4.5'	02/16/98	07:46PM
DA*26679*5	S17B2 11'-12.5'	02/16/98	08:09PM
DA*26679*6	S17B3 10.5'-11.	02/16/98	08:20PM
DA*26679*7	S17B4 6'-7'	02/16/98	08:32PM
DA*26679*8	S17B4 11.5-13.5	02/16/98	08:43PM
DA*26679*9	S17B4 14'-16'	02/16/98	08:55PM
DA*26679*10	S17B1 2.5'-4'D	02/16/98	09:18PM
DA*26679*11	S17B5 14'-16'	02/17/98	02:37PM

KATALYST BATCH : P40912

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/16/98	CCB*980216PB*1	1052*7421/3050	Lead	MG/KG-	ND
02/16/98	CCB*980216PB*2	1052*7421/3050	Lead	MG/KG-	ND
02/16/98	CCB*980216PB*3	1052*7421/3050	Lead	MG/KG-	ND
02/16/98	CCB*980216PB*4	1052*7421/3050	Lead	MG/KG-	ND
02/17/98	CCB*980217PB*1	1052*7421/3050	Lead	MG/KG-	ND
02/17/98	CCB*980217PB*2	1052*7421/3050	Lead	MG/KG-	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	CCV*980216PB*1	1052*7421/3050	Lead	MG/KG-	0.020	0.021	105	90-110
02/16/98	CCV*980216PB*2	1052*7421/3050	Lead	MG/KG-	0.020	0.021	105	90-110
02/16/98	CCV*980216PB*3	1052*7421/3050	Lead	MG/KG-	0.020	0.021	105	90-110
02/16/98	CCV*980216PB*4	1052*7421/3050	Lead	MG/KG-	0.020	0.022	110	90-110
02/17/98	CCV*980217PB*1	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110
02/17/98	CCV*980217PB*2	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	ICV*980216PB*1	1052*7421/3050	Lead	MG/KG-	0.030	0.031	103	90-110
02/17/98	ICV*980217PB*1	1052*7421/3050	Lead	MG/KG-	0.030	0.030	100	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	LCS*98MP27064*1	1052*7421/3050	Lead	MG/KG-	2.00	2.09	104.5	80-120
02/17/98	LCS*98MP27080*1	1052*7421/3050	Lead	MG/KG-	2.00	2.13	106.5	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/16/98	MB*98MP27064*1	1052*7421/3050	Lead	MG/KG-	ND	0.500
02/17/98	MB*98MP27080*1	1052*7421/3050	Lead	MG/KG-	0.066	0.500

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/16/98	**RP*26679*2**	**1052*7421/3050**	**Lead**	**MG/KG-**	**12.6**	**5.86**	**73.0**		**20**
02/17/98	RP*26679*11	1052*7421/3050	Lead	MG/KG-	8.95	7.63	15.9		20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/16/98	**SPM1*26679*2**	**1052**	**Lead**	**MG/KG-**	**12.6**	**2.52**	**-2.00**	**N/C**	**75-125**		
02/16/98	**SPM2*26679*2**	**1052**	**Lead**	**MG/KG-**	**12.6**	**2.54**	**-4.72**	**N/C**	**75-125**		
02/17/98	**SPM1*26679*11**	**1052**	**Lead**	**MG/KG-**	**8.95**	**3.04**	**1.55**	**51.0**	**75-125**		
02/17/98	**SPM2*26679*11**	**1052**	**Lead**	**MG/KG-**	**8.95**	**3.01**	**1.45**	**48.2**	**75-125**	**5.60**	**20**

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	SPX*26679*1	1052*7421/3050	Lead	MG/KG-	12.5	11.6	92.8	85-115
02/16/98	SPX*26679*2	1052*7421/3050	Lead	MG/KG-	12.6	12.2	96.8	85-115
02/16/98	SPX*26679*3	1052*7421/3050	Lead	MG/KG-	13.6	13.5	99.3	85-115
02/16/98	SPX*26679*4	1052*7421/3050	Lead	MG/KG-	13.0	13.4	103.1	85-115
02/16/98	SPX*26679*5	1052*7421/3050	Lead	MG/KG-	12.6	12.3	97.6	85-115
02/16/98	SPX*26679*6	1052*7421/3050	Lead	MG/KG-	13.2	13.8	104.5	85-115
02/16/98	SPX*26679*7	1052*7421/3050	Lead	MG/KG-	13.4	13.0	97.0	85-115
02/16/98	SPX*26679*8	1052*7421/3050	Lead	MG/KG-	14.3	14.6	102.1	85-115
02/16/98	SPX*26679*9	1052*7421/3050	Lead	MG/KG-	14.9	15.5	104.0	85-115
02/16/98	SPX*26679*10	1052*7421/3050	Lead	MG/KG-	12.7	12.5	98.4	85-115
02/16/98	SPX*26682*2	1052*7421/3050	Lead	MG/KG-	12.7	12.7	100.0	85-115
02/16/98	SPX*26682*3	1052*7421/3050	Lead	MG/KG-	13.5	13.3	98.5	85-115
02/17/98	SPX*26679*11	1052*7421/3050	Lead	MG/KG-	15.3	14.7	96.1	85-115
02/17/98	SPX*26682*4	1052*7421/3050	Lead	MG/KG-	12.4	11.7	94.4	85-115
02/17/98	SPX*26682*5	1052*7421/3050	Lead	MG/KG-	12.9	12.4	96.1	85-115
02/17/98	SPX*26682*6	1052*7421/3050	Lead	MG/KG-	12.6	12.1	96.0	85-115
02/17/98	SPX*26682*7	1052*7421/3050	Lead	MG/KG-	13.5	12.9	95.6	85-115

KATALYST BATCH : P40912

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40912 Analysis Date: 02/17/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCB present?	X		
CCB within acceptance criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?		X	1052*7421/3050
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	1052*7421/3050
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?		X	1052*7421/3050
Analytical spike present?	X		
Analytical spike within acceptance criteria?	X		

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40919
NALYSIS : SW6010

QC TYPE : FDER/SW
ANALYST : JON BUERCK
XTRACTOR :
ATA ENTRY : ICP UPLOAD

REPORT DATE/TIME : 03/09/98 11:02
ANALYSIS DATE/TIME : 02/18/98
EXTRACT DATE : 02/16/98

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
6679	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

AMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26679*1	S17B1 2.5-4'	02/18/98	10:18AM
A*26679*2	S17B1 12'-13'	02/18/98	10:22AM
A*26679*3	S17B1 16'-17'	02/18/98	10:49AM
DA*26679*4	S17B2 3'-4.5'	02/18/98	10:53AM
DA*26679*5	S17B2 11'-12.5'	02/18/98	10:56AM
A*26679*6	S17B3 10.5'-11.	02/18/98	10:59AM
A*26679*7	S17B4 6'-7'	02/18/98	11:10AM
A*26679*8	S17B4 11.5-13.5	02/18/98	11:13AM
DA*26679*9	S17B4 14'-16'	02/18/98	11:17AM
DA*26679*10	S17B1 2.5'-4'D	02/18/98	11:20AM
A*26679*11	S17B5 14'-16'	02/18/98	11:24AM

KATALYST BATCH : P40919

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/18/98	CCB*980218*1	1078*6010/3050	Silver	MG/KG-	0.003
02/18/98	CCB*980218*2	1078*6010/3050	Silver	MG/KG-	0.002
02/18/98	CCB*980218*3	1078*6010/3050	Silver	MG/KG-	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/18/98	CCV*980218*1	1078*6010/3050	Silver	MG/KG-	0.400	0.370	92.5	90-110
02/18/98	CCV*980218*2	1078*6010/3050	Silver	MG/KG-	0.400	0.372	93.0	90-110
02/18/98	CCV*980218*3	1078*6010/3050	Silver	MG/KG-	0.400	0.371	92.8	90-110
02/18/98	CCV*980218*4	1078*6010/3050	Silver	MG/KG-	0.400	0.370	92.5	90-110

Interference Check Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/18/98	ICS*AB*1	1078*6010/3050	Silver	MG/KG-	1.00	0.912	91.2	80-120
02/18/98	ICS*AB*2	1078*6010/3050	Silver	MG/KG-	1.00	0.924	92.4	80-120

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/18/98	ICV*980218*1	1078*6010/3050	Silver	MG/KG-	0.600	0.546	91.0	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/18/98	LCS*98MP27087*1	1078*6010/3050	Silver	MG/KG-	50.0	43.4	86.8	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/18/98	MB*98MP27087*1	1078*6010/3050	Silver	MG/KG-	ND	1.00

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/18/98	RP*26679*2	1078*6010/3050	Silver	MG/KG-	<1.27	<1.26			20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/18/98	SPM1*26679*2	1078	Silver	MG/KG-	0.025	63.2	53.4	84.5	54-125		
02/18/98	SPM2*26679*2	1078	Silver	MG/KG-	0.025	63.6	53.9	84.7	54-125	0.200	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/18/98	SPX*26679*2	1078*6010/3050	Silver	MG/KG-	63.5	56.6	89.1	75-125

KATALYST BATCH : P40919

Katalyst Analytical Technologies, Inc.
Computer QC Checks

atch No.: P40919 Analysis Date: 02/18/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No
re ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
CB present?	X	
CB within acceptance criteria?	X	
CCV present?	X	
CV within acceptance criteria?	X	
ICS present?	X	
ICS within acceptance criteria?	X	
CV present?	X	
CV within acceptance criteria?	X	
LCS present?	X	
CS within acceptance criteria?	X	
Method blank present?	X	
Method blank within acceptance criteria?	X	
ample replicate present?	X	
ample replicate within acceptance criteria?	X	
Sample matrix spike present?	X	
ample matrix spike within acceptance criteria?	X	
ample matrix spike duplicate present?	X	
Sample matrix spike duplicate within acceptance criteria?	X	
alytical spike present?	X	
alytical spike within acceptance criteria?	X	

BATCH OVERRIDE BY:

INALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40940
ANALYSIS : SW7060

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 11:03
ANALYSIS DATE/TIME : 02/12/98
EXTRACT DATE : 02/09/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26679	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26679*1	S17B1 2.5-4'	02/17/98	06:34PM
DA*26679*2	S17B1 12'-13'	02/17/98	06:45PM
DA*26679*3	S17B1 16'-17'	02/18/98	01:11PM
DA*26679*4	S17B2 3'-4.5'	02/18/98	01:23PM
DA*26679*5	S17B2 11'-12.5'	02/18/98	01:36PM
DA*26679*6	S17B3 10.5'-11.	02/18/98	01:59PM
DA*26679*7	S17B4 6'-7'	02/18/98	02:11PM
DA*26679*9	S17B4 14'-16'	02/18/98	02:23PM
DA*26679*10	S17B1 2.5'-4'D	02/18/98	02:35PM

KATALYST BATCH : P40940

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
/17/98	CCB*980217AS*1	1003*7060/3050	Arsenic	MG/KG-	0.0006
/18/98	CCB*980218AS*1	1003*7060/3050	Arsenic	MG/KG-	ND
02/18/98	CCB*980218AS*2	1003*7060/3050	Arsenic	MG/KG-	ND
02/18/98	CCB*980218AS*3	1003*7060/3050	Arsenic	MG/KG-	0.0003
/18/98	CCB*980218AS*4	1003*7060/3050	Arsenic	MG/KG-	0.0004
/18/98	CCB*980218AS*5	1003*7060/3050	Arsenic	MG/KG-	ND
/18/98	CCB*980218AS*6	1003*7060/3050	Arsenic	MG/KG-	0.0004
02/18/98	CCB*980218AS*7	1003*7060/3050	Arsenic	MG/KG-	ND
02/12/98	CCB*980212AS*1	1003*7060/3050	Arsenic	MG/KG-	ND
/13/98	CCB*980212AS*2	1003*7060/3050	Arsenic	MG/KG-	ND

Continuing Calibration Verification Sample Summary

TE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
/17/98	CCV*980217AS*1	1003*7060/3050	Arsenic	MG/KG-	0.020	0.019	95.0	90-110
/18/98	CCV*980218AS*1	1003*7060/3050	Arsenic	MG/KG-	0.020	0.022	110	90-110
02/18/98	CCV*980218AS*2	1003*7060/3050	Arsenic	MG/KG-	0.020	0.021	105	90-110
02/18/98	CCV*980218AS*3	1003*7060/3050	Arsenic	MG/KG-	0.020	0.020	100.0	90-110
/18/98	CCV*980218AS*4	1003*7060/3050	Arsenic	MG/KG-	0.020	0.020	100.0	90-110
/18/98	CCV*980218AS*5	1003*7060/3050	Arsenic	MG/KG-	0.020	0.020	100.0	90-110
02/18/98	CCV*980218AS*6	1003*7060/3050	Arsenic	MG/KG-	0.020	0.019	95.0	90-110
02/18/98	CCV*980218AS*7	1003*7060/3050	Arsenic	MG/KG-	0.020	0.019	95.0	90-110
/12/98	CCV*980212AS*1	1003*7060/3050	Arsenic	MG/KG-	0.020	0.019	95.0	90-110
/13/98	CCV*980212AS*2	1003*7060/3050	Arsenic	MG/KG-	0.020	0.019	95.0	90-110

Initial Calibration Verification Sample Summary

TE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
/17/98	ICV*980217AS*1	1003*7060/3050	Arsenic	MG/KG-	0.030	0.028	93.3	90-110
02/18/98	ICV*980218AS*1	1003*7060/3050	Arsenic	MG/KG-	0.030	0.031	103	90-110
02/18/98	ICV*980218AS*2	1003*7060/3050	Arsenic	MG/KG-	0.030	0.029	96.7	90-110
/12/98	ICV*980212AS*1	1003*7060/3050	Arsenic	MG/KG-	0.030	0.029	96.7	90-110
/13/98	ICV*980212AS*2	1003*7060/3050	Arsenic	MG/KG-	0.030	0.029	96.7	90-110

Laboratory Control Sample Summary

TE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
/12/98	LCS*98MP27064*1	1003*7060/3050	Arsenic	MG/KG-	2.00	1.64	82.0	80-120

Method Blank Sample Summary

TE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
/12/98	MB*98MP27064*1	1003*7060/3050	Arsenic	MG/KG-	ND	5.00

Replicate Analysis Sample Summary

TE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/17/98	RP*26679*2	1003*7060/3050	Arsenic	MG/KG-	20.2	11.5			20

mple Matrix Spike Recovery Summary

TE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/17/98	**SPM1*26679*2**	**1003**	**Arsenic**	**MG/KG-**	**20.2**	**2.52**	**-5.80**	**N/C**	**75-125**		
02/17/98	**SPM2*26679*2**	**1003**	**Arsenic**	**MG/KG-**	**20.2**	**2.54**	**-3.30**	**N/C**	**75-125**		

ike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
/17/98	**SPX*26679*1**	**1003*7060/3050**	**Arsenic**	**MG/KG-**	**12.5**	**15.6**	**124.8**	**85-115**
/17/98	**SPX*26679*2**	**1003*7060/3050**	**Arsenic**	**MG/KG-**	**25.2**	**30.8**	**122.2**	**85-115**
/18/98	**SPX*26679*3**	**1003*7060/3050**	**Arsenic**	**MG/KG-**	**13.6**	**16.0**	**117.6**	**85-115**
02/18/98	SPX*26679*4	1003*7060/3050	Arsenic	MG/KG-	13.0	14.1	108.5	85-115
02/18/98	**SPX*26679*5**	**1003*7060/3050**	**Arsenic**	**MG/KG-**	**12.6**	**14.7**	**116.7**	**85-115**
/18/98	SPX*26679*6	1003*7060/3050	Arsenic	MG/KG-	5.29	5.81	109.8	85-115
/18/98	SPX*26679*7	1003*7060/3050	Arsenic	MG/KG-	26.9	29.0	107.8	85-115
02/18/98	**SPX*26679*9**	**1003*7060/3050**	**Arsenic**	**MG/KG-**	**14.9**	**17.6**	**118.1**	**85-115**
02/18/98	SPX*26679*10	1003*7060/3050	Arsenic	MG/KG-	12.7	13.9	109.4	85-115
/18/98	SPX*26682*2	1003*7060/3050	Arsenic	MG/KG-	2.53	2.67	105.5	85-115
/18/98	SPX*26682*3	1003*7060/3050	Arsenic	MG/KG-	5.39	5.49	101.9	85-115
/18/98	SPX*26682*4	1003*7060/3050	Arsenic	MG/KG-	12.4	13.0	104.8	85-115
02/18/98	SPX*26682*5	1003*7060/3050	Arsenic	MG/KG-	2.58	2.80	108.5	85-115
02/18/98	SPX*26682*6	1003*7060/3050	Arsenic	MG/KG-	12.6	13.7	108.7	85-115
/18/98	SPX*26682*7	1003*7060/3050	Arsenic	MG/KG-	2.69	2.86	106.3	85-115

KATALYST BATCH : P40940

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/13/98	SPX*26679*8	1003*7060/3050	Arsenic	MG/KG-	2.86	2.43	85.0	85-115

KATALYST BATCH : P40940

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40940 Analysis Date: 02/12/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
re ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CB present?	X		
CB within acceptance criteria?	X		
CV present?	X		
CV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
CS present?	X		
CS within acceptance criteria?	X		
Method blank present?	X		
ethod blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?		X	1003*7060/3050
ample matrix spike present?	X		
ample matrix spike within acceptance criteria?		X	1003*7060/3050 SPX*26679*1 Exceeds criteria. (Recovery Limit 100
Sample matrix spike duplicate present?	X		
ample matrix spike duplicate within acceptance criteria?		X	1003*7060/3050 SPX*26679*1 Exceeds criteria. (Recovery Limit 100
Analytical spike present?	X		
Analytical spike within acceptance criteria?		X	1003*7060/3050

ATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40911
ANALYSIS : SW7740

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 11:03
ANALYSIS DATE/TIME : 02/16/98
EXTRACT DATE : 02/09/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26679	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26679*1	S17B1 2.5-4'	02/12/98	03:52PM
DA*26679*2	S17B1 12'-13'	02/12/98	04:05PM
DA*26679*3	S17B1 16'-17'	02/12/98	06:44PM
DA*26679*4	S17B2 3'-4.5'	02/12/98	06:56PM
DA*26679*5	S17B2 11'-12.5'	02/12/98	07:08PM
DA*26679*6	S17B3 10.5'-11.	02/12/98	07:32PM
DA*26679*7	S17B4 6'-7'	02/12/98	07:44PM
DA*26679*8	S17B4 11.5-13.5	02/12/98	07:57PM
DA*26679*9	S17B4 14'-16'	02/12/98	08:09PM
DA*26679*10	S17B1 2.5'-4'D	02/12/98	09:48PM

KATALYST BATCH : P40911

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/12/98	CCB*980212SE*1	1148*7740/3050	Selenium	MG/KG-	ND
02/12/98	CCB*980212SE*2	1148*7740/3050	Selenium	MG/KG-	ND
02/12/98	CCB*980212SE*3	1148*7740/3050	Selenium	MG/KG-	ND
02/16/98	CCB*980216SE*1	1148*7740/3050	Selenium	MG/KG-	ND
02/16/98	CCB*980216SE*2	1148*7740/3050	Selenium	MG/KG-	ND
02/16/98	CCB*980216SE*3	1148*7740/3050	Selenium	MG/KG-	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	CCV*980212SE*1	1148*7740/3050	Selenium	MG/KG-	0.020	0.020	100.0	90-110
02/12/98	CCV*980212SE*2	1148*7740/3050	Selenium	MG/KG-	0.020	0.019	95.0	90-110
02/12/98	CCV*980212SE*3	1148*7740/3050	Selenium	MG/KG-	0.020	0.019	95.0	90-110
02/16/98	CCV*980216SE*1	1148*7740/3050	Selenium	MG/KG-	0.020	0.019	95.0	90-110
02/16/98	CCV*980216SE*2	1148*7740/3050	Selenium	MG/KG-	0.020	0.019	95.0	90-110
02/16/98	CCV*980216SE*3	1148*7740/3050	Selenium	MG/KG-	0.020	0.018	90.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	ICV*980212SE*1	1148*7740/3050	Selenium	MG/KG-	0.030	0.031	103	90-110
02/12/98	ICV*980212SE*2	1148*7740/3050	Selenium	MG/KG-	0.030	0.031	103	90-110
02/16/98	ICV*980216SE*1	1148*7740/3050	Selenium	MG/KG-	0.030	0.031	103	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	LCS*98MP27064*1	1148*7740/3050	Selenium	MG/KG-	2.00	2.21	110.5	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/12/98	MB*98MP27064*1	1148*7740/3050	Selenium	MG/KG-	0.037	0.500

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/12/98	**RP*26679*2**	**1148*7740/3050**	**Selenium**	**MG/KG-**	**1.03**	**<0.636**	**47.3**		**20**

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/12/98	**SPM1*26679*2**	**1148**	**Selenium**	**MG/KG-**	**1.03**	**2.52**	**1.33**	**52.8**	**75-125**		
02/12/98	**SPM2*26679*2**	**1148**	**Selenium**	**MG/KG-**	**1.03**	**2.54**	**0.880**	**34.6**	**75-125**	**41.6**	**20**

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	SPX*26679*1	1148*7740/3050	Selenium	MG/KG-	2.51	2.47	98.4	85-115
02/12/98	SPX*26679*2	1148*7740/3050	Selenium	MG/KG-	2.52	2.33	92.5	85-115
02/12/98	SPX*26679*3	1148*7740/3050	Selenium	MG/KG-	2.71	2.89	106.6	85-115
02/12/98	SPX*26679*4	1148*7740/3050	Selenium	MG/KG-	2.59	2.45	94.6	85-115
02/12/98	SPX*26679*5	1148*7740/3050	Selenium	MG/KG-	2.52	2.54	100.8	85-115
02/12/98	SPX*26679*6	1148*7740/3050	Selenium	MG/KG-	2.65	2.37	89.4	85-115
02/12/98	SPX*26679*7	1148*7740/3050	Selenium	MG/KG-	2.69	2.38	88.5	85-115
02/12/98	SPX*26679*8	1148*7740/3050	Selenium	MG/KG-	2.86	2.63	92.0	85-115
02/12/98	SPX*26679*9	1148*7740/3050	Selenium	MG/KG-	2.98	2.54	85.2	85-115
02/16/98	SPX*26679*10	1148*7740/3050	Selenium	MG/KG-	2.55	2.63	103.1	85-115

KATALYST BATCH : P40911

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40911 Analysis Date: 02/16/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCB present?	X		
CCB within acceptance criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?		X	1148*7740/3050
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	1148*7740/3050
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?		X	1148*7740/3050
Analytical spike present?	X		
Analytical spike within acceptance criteria?	X		

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40873
NALYSIS : SW7471

QC TYPE : FDER/SW
ANALYST : TODD PETERSON
EXTRACTOR : TOM FERRELL
ATA ENTRY : TODD PETERSON

REPORT DATE/TIME : 03/09/98 11:03
ANALYSIS DATE/TIME : 02/09/98
EXTRACT DATE : 02/08/98

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
7471 HG

IELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
6679	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE ODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
A*26679*1	S17B1 2.5-4'	02/09/98	12:59PM
A*26679*3	S17B1 16'-17'	02/09/98	01:11PM
A*26679*4	S17B2 3'-4.5'	02/09/98	01:13PM
A*26679*5	S17B2 11'-12.5'	02/09/98	01:16PM
A*26679*6	S17B3 10.5'-11.	02/09/98	01:23PM
A*26679*7	S17B4 6'-7'	02/09/98	01:25PM
A*26679*8	S17B4 11.5-13.5	02/09/98	01:27PM
A*26679*9	S17B4 14'-16'	02/09/98	01:29PM
A*26679*10	S17B1 2.5'-4'D	02/09/98	01:32PM
A*26679*2	S17B1 12'-13'	02/11/98	04:04PM
A*26679*11	S17B5 14'-16'	02/11/98	04:14PM
A*26679*11*C	S17B5 14'-16'	02/11/98	04:49PM

KATALYST BATCH : P40873

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/09/98	CCB*980209HG*1	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*3	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*4	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*5	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*6	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*7	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*8	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*9	71921*7471	Mercury	MG/KG-	0.00002
02/09/98	CCB*980209HG*10	71921*7471	Mercury	MG/KG-	ND
02/11/98	CCB*980211HG*1	71921*7471	Mercury	MG/KG-	0.00008
02/11/98	CCB*980211HG*2	71921*7471	Mercury	MG/KG-	0.00007
02/11/98	CCB*980211HG*3	71921*7471	Mercury	MG/KG-	0.00008
02/11/98	CCB*980211HG*4	71921*7471	Mercury	MG/KG-	0.00008
02/11/98	CCB*980211HG*5	71921*7471	Mercury	MG/KG-	0.00008

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	CCV*980209HG*1	71921*7471	Mercury	MG/KG-	0.0050	0.0051	102.0	90-110
02/09/98	CCV*980209HG*3	71921*7471	Mercury	MG/KG-	0.0050	0.0050	100.00	90-110
02/09/98	CCV*980209HG*4	71921*7471	Mercury	MG/KG-	0.0050	0.0049	98.00	90-110
02/09/98	CCV*980209HG*5	71921*7471	Mercury	MG/KG-	0.0050	0.0048	96.00	90-110
02/09/98	CCV*980209HG*6	71921*7471	Mercury	MG/KG-	0.0050	0.0048	96.00	90-110
02/09/98	CCV*980209HG*7	71921*7471	Mercury	MG/KG-	0.0050	0.0048	96.00	90-110
02/09/98	CCV*980209HG*8	71921*7471	Mercury	MG/KG-	0.0050	0.0048	96.00	90-110
02/09/98	CCV*980209HG*9	71921*7471	Mercury	MG/KG-	0.0050	0.0047	94.00	90-110
02/09/98	CCV*980209HG*10	71921*7471	Mercury	MG/KG-	0.0050	0.0047	94.00	90-110
02/11/98	CCV*980211HG*1	71921*7471	Mercury	MG/KG-	0.0050	0.0051	102.0	90-110
02/11/98	CCV*980211HG*2	71921*7471	Mercury	MG/KG-	0.0050	0.0052	104.0	90-110
02/11/98	CCV*980211HG*3	71921*7471	Mercury	MG/KG-	0.0050	0.0052	104.0	90-110
02/11/98	CCV*980211HG*4	71921*7471	Mercury	MG/KG-	0.0050	0.0052	104.0	90-110
02/11/98	CCV*980211HG*5	71921*7471	Mercury	MG/KG-	0.0050	0.0051	102.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	ICV*980209HG*1	71921*7471	Mercury	MG/KG-	0.0025	0.00275	110	90-110
02/11/98	ICV*980211HG*1	71921*7471	Mercury	MG/KG-	0.0025	0.0027	108.0	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	LCS*MP27059*1	71921*7471	Mercury	MG/KG-	0.1667	0.1883	112.96	80-120
02/09/98	LCS*MP27061*1	71921*7471	Mercury	MG/KG-	0.1667	0.1750	104.98	80-120
02/11/98	LCS*MP27066*1	71921*7471	Mercury	MG/KG-	0.1667	0.1917	115.00	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/09/98	MB*MP27059*1	71921*7471	Mercury	MG/KG-	0.0008	0.0200
02/09/98	MB*MP27061*1	71921*7471	Mercury	MG/KG-	ND	0.0200
02/11/98	MB*MP27066*1	71921*7471	Mercury	MG/KG-	0.0187	0.0200

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/11/98	**RP*26682*2**	**71921*7471**	**Mercury**	**MG/KG-**	**0.0491**	**0.0646**	**27.30**		**20**
02/11/98	RP*26653*11	71921*7471	Mercury	MG/KG-	0.0673	0.0600	11.50		20
02/11/98	RP*26679*2	71921*7471	Mercury	MG/KG-	0.0532	0.0647	19.50		20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/11/98	SPM1*26682*2	71921	Mercury	MG/KG-	0.0491	0.2126	0.2400	112.89	75-125		
02/11/98	**SPM2*26682*2**	**71921**	**Mercury**	**MG/KG-**	**0.0491**	**0.2126**	**0.2804**	**131.89**	**75-125**	**15.50**	**20**
02/11/98	SPM1*26653*11	71921	Mercury	MG/KG-	0.0673	0.2151	0.2273	105.67	75-125		
02/11/98	SPM2*26653*11	71921	Mercury	MG/KG-	0.0673	0.2151	0.2424	112.69	75-125	6.400	20
02/11/98	SPM1*26679*2	71921	Mercury	MG/KG-	0.0532	0.2129	0.2427	114.00	75-125		
02/11/98	SPM2*26679*2	71921	Mercury	MG/KG-	0.0532	0.2129	0.2427	114.00	75-125	0.0	20

KATALYST BATCH : P40873

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40873 Analysis Date: 02/09/98 Analyst: TODD PETERSON Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCB present?	X		
CCB within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?		X	71921*7471
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?	X		
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?		X	71921*7471

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40844
ANALYSIS : E160.3

QC TYPE : FDER/SW
ANALYST : Marcy Fritz
EXTRACTOR :
DATA ENTRY : SPREADSHEET UPLOAD

REPORT DATE/TIME : 03/09/98 11:04
ANALYSIS DATE/TIME : 02/09/98 14:45
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26679	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26679*1	S17B1 2.5-4'		
DA*26679*2	S17B1 12'-13'		
DA*26679*3	S17B1 16'-17'		
DA*26679*4	S17B2 3'-4.5'		
DA*26679*5	S17B2 11'-12.5'		
DA*26679*6	S17B3 10.5'-11.		
DA*26679*7	S17B4 6'-7'		
DA*26679*8	S17B4 11.5-13.5		
DA*26679*9	S17B4 14'-16'		
DA*26679*10	S17B1 2.5'-4'D		
DA*26679*11	S17B5 14'-16'		

KATALYST BATCH : P40844

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40844 Analysis Date: 02/09/98 Analyst: Marcy Fritz Report Date: 03/09/98

	Yes	No
Are ALL units documented in batch?	X	
Analysis holding time within criteria?	X	

BATCH OVERRIDE BY:

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P41047
NALYSIS : 8240

QC TYPE : FDER/SW
ANALYST : TROY AVERY
XTRACTOR :
ATA ENTRY : GCMS UPLOAD

REPORT DATE/TIME : 03/09/98 11:04
ANALYSIS DATE/TIME : 03/02/98
EXTRACT DATE :

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
8240 SOILS

IELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26679	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26679*1	S17B1 2.5-4'	02/17/98	08:08PM
DA*26679*2	S17B1 12'-13'	02/17/98	08:38PM
DA*26679*3	S17B1 16'-17'	02/17/98	10:06PM
DA*26679*4	S17B2 3'-4.5'	02/17/98	10:36PM
DA*26679*5	S17B2 11'-12.5'	02/17/98	11:06PM
DA*26679*6	S17B3 10.5'-11.	02/17/98	11:35PM
DA*26679*7	S17B4 6'-7'	02/18/98	12:04AM
DA*26679*8	S17B4 11.5-13.5	02/18/98	12:34AM
DA*26679*5	S17B2 11'-12.5'	02/18/98	01:44PM
DA*26679*9	S17B4 14'-16'	02/18/98	03:13PM
DA*26679*10	S17B1 2.5'-4'D	02/18/98	03:43PM
DA*26679*11	S17B5 14'-16'	02/18/98	04:13PM
DA*26679*1	S17B1 2.5-4'	03/01/98	11:41PM
DA*26679*2	S17B1 12'-13'	03/02/98	12:09AM
DA*26679*3	S17B1 16'-17'	03/02/98	12:38AM
DA*26679*4	S17B2 3'-4.5'	03/02/98	01:07AM
DA*26679*6	S17B3 10.5'-11.	03/02/98	01:36AM
DA*26679*7	S17B4 6'-7'	03/02/98	02:05AM
DA*26679*8	S17B4 11.5-13.5	03/02/98	02:34AM
DA*26679*9	S17B4 14'-16'	03/02/98	03:03AM
DA*26679*10	S17B1 2.5'-4'D	03/02/98	03:31AM
DA*26679*11	S17B5 14'-16'	03/02/98	04:00AM
DA*26679*3	S17B1 16'-17'	03/02/98	09:46AM

KATALYST BATCH : P41047

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	LCS*H021698*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	64.6	129.2	59-172
02/16/98	LCS*H021698*1	34237*8240/5030	Benzene	UG/KG-	50.0	63.9	127.8	66-142
02/16/98	LCS*H021698*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	54.7	109.4	62-137
02/16/98	LCS*H021698*1	34483*8240/5030	Toluene	UG/KG-	50.0	64.6	129.2	59-139
02/16/98	LCS*H021698*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	61.5	123.0	60-133
02/17/98	LCS*H021798*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	66.5	133.0	59-172
02/17/98	LCS*H021798*1	34237*8240/5030	Benzene	UG/KG-	50.0	60.0	120.0	66-142
02/17/98	LCS*H021798*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	50.7	101.4	62-137
02/17/98	LCS*H021798*1	34483*8240/5030	Toluene	UG/KG-	50.0	58.5	117.0	59-139
02/17/98	LCS*H021798*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	54.4	108.8	60-133
02/18/98	LCS*H021898*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	76.3	152.6	59-172
02/18/98	LCS*H021898*1	34237*8240/5030	Benzene	UG/KG-	50.0	65.1	130.2	66-142
02/18/98	LCS*H021898*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	55.0	110.0	62-137
02/18/98	LCS*H021898*1	34483*8240/5030	Toluene	UG/KG-	50.0	62.1	124.2	59-139
02/18/98	LCS*H021898*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	58.0	116.0	60-133
02/19/98	LCS*H021998*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	61.5	123.0	59-172
02/19/98	LCS*H021998*1	34237*8240/5030	Benzene	UG/KG-	50.0	57.4	114.8	66-142
02/19/98	LCS*H021998*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	51.2	102.4	62-137
02/19/98	LCS*H021998*1	34483*8240/5030	Toluene	UG/KG-	50.0	53.9	107.8	59-139
02/19/98	LCS*H021998*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	54.2	108.4	60-133
02/20/98	LCS*H022098*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	65.0	130.0	59-172
02/20/98	LCS*H022098*1	34237*8240/5030	Benzene	UG/KG-	50.0	56.3	112.6	66-142
02/20/98	LCS*H022098*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	47.9	95.8	62-137
02/20/98	LCS*H022098*1	34483*8240/5030	Toluene	UG/KG-	50.0	50.5	101.0	59-139
02/20/98	LCS*H022098*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	50.0	100.0	60-133
03/01/98	LCS*H030198*3	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	57.5	115.0	59-172
03/01/98	LCS*H030198*3	34237*8240/5030	Benzene	UG/KG-	50.0	54.3	108.6	66-142
03/01/98	LCS*H030198*3	34487*8240/5030	Trichloroethene	UG/KG-	50.0	54.3	108.6	62-137
03/01/98	LCS*H030198*3	34483*8240/5030	Toluene	UG/KG-	50.0	54.1	108.2	59-139
03/01/98	LCS*H030198*3	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	55.0	110.0	60-133
03/02/98	LCS*H030298*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	59.7	119.4	59-172
03/02/98	LCS*H030298*1	34237*8240/5030	Benzene	UG/KG-	50.0	56.1	112.2	66-142
03/02/98	LCS*H030298*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	57.1	114.2	62-137
03/02/98	LCS*H030298*1	34483*8240/5030	Toluene	UG/KG-	50.0	56.2	112.4	59-139
03/02/98	LCS*H030298*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	57.6	115.2	60-133

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/16/98	MB*H021698*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75059*8240/5030	Acetone	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34426*8240/5030	Methylene Chloride	UG/KG-	1.43	5.00
02/16/98	MB*H021698*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75078*8240/5030	2-Butanone	UG/KG-	2.28	10.00
02/16/98	MB*H021698*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34478*8240/5030	Tetrachloroethene	UG/KG-	0.57	5.00
02/16/98	MB*H021698*1	75166*8240/5030	2-Hexanone	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00

KATALYST BATCH : P41047

thod Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/16/98	MB*H021698*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75059*8240/5030	Acetone	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34426*8240/5030	Methylene Chloride	UG/KG-	1.28	5.00
02/17/98	MB*H021798*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75078*8240/5030	2-Butanone	UG/KG-	4.00	10.00
02/17/98	MB*H021798*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34478*8240/5030	Tetrachloroethene	UG/KG-	0.67	5.00
02/17/98	MB*H021798*1	75166*8240/5030	2-Hexanone	UG/KG-	0.91	10.00
02/17/98	MB*H021798*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75059*8240/5030	Acetone	UG/KG-	5.77	10.00
02/18/98	MB*H021898*1	34426*8240/5030	Methylene Chloride	UG/KG-	0.53	5.00
02/18/98	MB*H021898*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75078*8240/5030	2-Butanone	UG/KG-	2.26	10.00
02/18/98	MB*H021898*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34478*8240/5030	Tetrachloroethene	UG/KG-	2.82	5.00
02/18/98	MB*H021898*1	75166*8240/5030	2-Hexanone	UG/KG-	0.89	10.00
02/18/98	MB*H021898*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/19/98	MB*H021998*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00

KATALYST BATCH : P41047

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/19/98	MB*H021998*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/19/98	MB*H021998*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/19/98	MB*H021998*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	75059*8240/5030	Acetone	UG/KG-	3.47	10.00
02/19/98	MB*H021998*1	34426*8240/5030	Methylene Chloride	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	75078*8240/5030	2-Butanone	UG/KG-	2.42	10.00
02/19/98	MB*H021998*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34487*8240/5030	Trichloroethene	UG/KG-	0.52	5.00
02/19/98	MB*H021998*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/19/98	MB*H021998*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34478*8240/5030	Tetrachloroethene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	75166*8240/5030	2-Hexanone	UG/KG-	1.09	10.00
02/19/98	MB*H021998*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/20/98	MB*H022098*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/20/98	MB*H022098*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/20/98	MB*H022098*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/20/98	MB*H022098*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	75059*8240/5030	Acetone	UG/KG-	3.35	10.00
02/20/98	MB*H022098*1	34426*8240/5030	Methylene Chloride	UG/KG-	0.65	5.00
02/20/98	MB*H022098*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	75078*8240/5030	2-Butanone	UG/KG-	3.88	10.00
02/20/98	MB*H022098*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/20/98	MB*H022098*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34478*8240/5030	Tetrachloroethene	UG/KG-	0.95	5.00
02/20/98	MB*H022098*1	75166*8240/5030	2-Hexanone	UG/KG-	1.36	10.00
02/20/98	MB*H022098*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
03/01/98	MB*H030198*4	34421*8240/5030	Chloromethane	UG/KG-	ND	1250
03/01/98	MB*H030198*4	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	1250
03/01/98	MB*H030198*4	34416*8240/5030	Bromomethane	UG/KG-	ND	1250
03/01/98	MB*H030198*4	34314*8240/5030	Chloroethane	UG/KG-	ND	1250
03/01/98	MB*H030198*4	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	625

KATALYST BATCH : P41047

ethod Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
03/01/98	MB*H030198*4	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	625
3/01/98	MB*H030198*4	75059*8240/5030	Acetone	UG/KG-	795	1250
3/01/98	MB*H030198*4	34426*8240/5030	Methylene Chloride	UG/KG-	105	625
3/01/98	MB*H030198*4	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	625
3/01/98	MB*H030198*4	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	625
3/01/98	MB*H030198*4	75078*8240/5030	2-Butanone	UG/KG-	289	1250
03/01/98	MB*H030198*4	34318*8240/5030	Chloroform	UG/KG-	ND	625
03/01/98	MB*H030198*4	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	625
3/01/98	MB*H030198*4	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	625
3/01/98	MB*H030198*4	34237*8240/5030	Benzene	UG/KG-	ND	625
3/01/98	MB*H030198*4	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34487*8240/5030	Trichloroethene	UG/KG-	95.7	625
03/01/98	MB*H030198*4	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	625
3/01/98	MB*H030198*4	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	625
3/01/98	MB*H030198*4	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	625
03/01/98	MB*H030198*4	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	1250
03/01/98	MB*H030198*4	34483*8240/5030	Toluene	UG/KG-	ND	625
3/01/98	MB*H030198*4	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	625
3/01/98	MB*H030198*4	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	625
3/01/98	MB*H030198*4	34478*8240/5030	Tetrachloroethene	UG/KG-	124	625
03/01/98	MB*H030198*4	75166*8240/5030	2-Hexanone	UG/KG-	286	1250
03/01/98	MB*H030198*4	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	625
3/01/98	MB*H030198*4	34304*8240/5030	Chlorobenzene	UG/KG-	ND	625
3/01/98	MB*H030198*4	34374*8240/5030	Ethylbenzene	UG/KG-	ND	625
03/01/98	MB*H030198*4	45510*8240/5030	Xylenes (total)	UG/KG-	ND	625
03/01/98	MB*H030198*4	75192*8240/5030	Styrene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34290*8240/5030	Bromoform	UG/KG-	ND	625
3/01/98	MB*H030198*4	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	625
3/02/98	MB*H030298*1	34421*8240/5030	Chloromethane	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34416*8240/5030	Bromomethane	UG/KG-	ND	1250
3/02/98	MB*H030298*1	34314*8240/5030	Chloroethane	UG/KG-	ND	1250
3/02/98	MB*H030298*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	625
03/02/98	MB*H030298*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	625
03/02/98	MB*H030298*1	75059*8240/5030	Acetone	UG/KG-	782	1250
03/02/98	MB*H030298*1	34426*8240/5030	Methylene Chloride	UG/KG-	80.3	625
3/02/98	MB*H030298*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	625
3/02/98	MB*H030298*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	625
03/02/98	MB*H030298*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	625
3/02/98	MB*H030298*1	75078*8240/5030	2-Butanone	UG/KG-	391	1250
3/02/98	MB*H030298*1	34318*8240/5030	Chloroform	UG/KG-	ND	625
03/02/98	MB*H030298*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	625
03/02/98	MB*H030298*1	34237*8240/5030	Benzene	UG/KG-	ND	625
3/02/98	MB*H030298*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	625
3/02/98	MB*H030298*1	34487*8240/5030	Trichloroethene	UG/KG-	97.6	625
03/02/98	MB*H030298*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	625
3/02/98	MB*H030298*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	625
3/02/98	MB*H030298*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34483*8240/5030	Toluene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	625
3/02/98	MB*H030298*1	34478*8240/5030	Tetrachloroethene	UG/KG-	295	625
3/02/98	MB*H030298*1	75166*8240/5030	2-Hexanone	UG/KG-	271	1250
03/02/98	MB*H030298*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	625
3/02/98	MB*H030298*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	625
3/02/98	MB*H030298*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	625
03/02/98	MB*H030298*1	75192*8240/5030	Styrene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34290*8240/5030	Bromoform	UG/KG-	ND	625
03/02/98	MB*H030298*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	625

ample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/16/98	SPM1*26653*11	34504	1,1-Dichloroethene	UG/KG-	0.0	64.5	90.2	139.8	59-172		
02/16/98	SPM1*26653*11	34237	Benzene	UG/KG-	0.0	64.5	84.4	130.9	66-142		
02/16/98	SPM1*26653*11	34487	Trichloroethene	UG/KG-	0.0	64.5	69.3	107.4	62-137		
02/16/98	SPM1*26653*11	34483	Toluene	UG/KG-	0.0	64.5	86.1	133.5	59-139		

KATALYST BATCH : P41047

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/16/98	SPM1*26653*11	34304	Chlorobenzene	UG/KG-	0.0	64.5	77.8	120.6	60-133		
02/16/98	SPM2*26653*11	34504	1,1-Dichloroethene	UG/KG-	0.0	64.5	91.5	141.9	59-172	1.40	22
02/16/98	SPM2*26653*11	34237	Benzene	UG/KG-	0.0	64.5	82.8	128.4	66-142	2.00	21
02/16/98	SPM2*26653*11	34487	Trichloroethene	UG/KG-	0.0	64.5	68.0	105.4	62-137	1.90	24
02/16/98	SPM2*26653*11	34483	Toluene	UG/KG-	0.0	64.5	81.4	126.2	59-139	5.60	21
02/16/98	SPM2*26653*11	34304	Chlorobenzene	UG/KG-	0.0	64.5	74.5	115.5	60-133	4.30	21
02/16/98	SPM1*26668*2	34504	1,1-Dichloroethene	UG/KG-	0.0	64.0	89.9	140.5	59-172		
02/16/98	SPM1*26668*2	34237	Benzene	UG/KG-	0.0	64.0	83.6	130.6	66-142		
02/16/98	SPM1*26668*2	34487	Trichloroethene	UG/KG-	0.0	64.0	68.9	107.7	62-137		
02/16/98	SPM1*26668*2	34483	Toluene	UG/KG-	0.0	64.0	83.1	129.8	59-139		
02/16/98	SPM1*26668*2	34304	Chlorobenzene	UG/KG-	0.0	64.0	73.3	114.5	60-133		
02/16/98	SPM2*26668*2	34504	1,1-Dichloroethene	UG/KG-	0.0	64.0	88.9	138.9	59-172	1.10	22
02/16/98	SPM2*26668*2	34237	Benzene	UG/KG-	0.0	64.0	88.5	138.3	66-142	5.70	21
02/16/98	SPM2*26668*2	34487	Trichloroethene	UG/KG-	0.0	64.0	73.3	114.5	62-137	6.10	24
02/16/98	SPM2*26668*2	34483	Toluene	UG/KG-	0.0	64.0	83.3	130.2	59-139	0.20	21
02/16/98	SPM2*26668*2	34304	Chlorobenzene	UG/KG-	0.0	64.0	76.0	118.8	60-133	3.60	21
02/20/98	SPM1*26688*2	34504	1,1-Dichloroethene	UG/KG-	0.0	63.6	87.5	137.6	59-172		
02/20/98	**SPM1*26688*2**	**34237**	**Benzene**	**UG/KG-**	**0.0**	**63.6**	**91.1**	**143.2**	**66-142**		
02/20/98	SPM1*26688*2	34487	Trichloroethene	UG/KG-	1.38	63.6	74.4	117.0	62-137		
02/20/98	SPM1*26688*2	34483	Toluene	UG/KG-	0.0	63.6	86.0	135.2	59-139		
02/20/98	SPM1*26688*2	34304	Chlorobenzene	UG/KG-	0.0	63.6	78.9	124.1	60-133		
02/20/98	SPM2*26688*2	34504	1,1-Dichloroethene	UG/KG-	0.0	63.6	83.3	131.0	59-172	5.00	22
02/20/98	SPM2*26688*2	34237	Benzene	UG/KG-	0.0	63.6	84.5	132.9	66-142	7.50	21
02/20/98	SPM2*26688*2	34487	Trichloroethene	UG/KG-	1.38	63.6	71.7	112.7	62-137	3.80	24
02/20/98	SPM2*26688*2	34483	Toluene	UG/KG-	0.0	63.6	80.7	126.9	59-139	6.30	21
02/20/98	SPM2*26688*2	34304	Chlorobenzene	UG/KG-	0.0	63.6	74.2	116.7	60-133	6.20	21

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	DA*26679*1	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	60	120	70-121
02/17/98	**DA*26679*1**	**98811*SUR**	**TOLUENE-D8 (SW846)**	**UG/KG-**	**50**	**70**	**140**	**81-121**
02/17/98	DA*26679*1	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	49	98	74-121
02/17/98	DA*26679*2	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	57	110	70-121
02/17/98	DA*26679*2	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	58	120	81-121
02/17/98	DA*26679*2	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	54	110	74-121
02/17/98	SPM1*26679*2	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	57	110	70-121
02/17/98	SPM1*26679*2	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	58	120	81-121
02/17/98	SPM1*26679*2	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	54	110	74-121
02/17/98	SPM2*26679*2	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	56	110	70-121
02/17/98	SPM2*26679*2	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	56	110	81-121
02/17/98	SPM2*26679*2	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	54	110	74-121
02/17/98	DA*26679*3	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	59	120	70-121
02/17/98	DA*26679*3	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	60	120	81-121
02/17/98	DA*26679*3	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	54	110	74-121
02/17/98	DA*26679*4	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	61	120	70-121
02/17/98	DA*26679*4	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	61	120	81-121
02/17/98	DA*26679*4	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	52	100	74-121
02/17/98	DA*26679*5	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	61	120	70-121
02/17/98	DA*26679*5	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	60	120	81-121
02/17/98	DA*26679*5	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	53	110	74-121
02/17/98	DA*26679*6	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	62	120	70-121
02/17/98	DA*26679*6	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	59	120	81-121
02/17/98	DA*26679*6	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	54	110	74-121
02/18/98	**DA*26679*7**	**98813*SUR**	**1,2-DICHLOROETHANE-D4 (SW846)**	**UG/KG-**	**50**	**65**	**130**	**70-121**
02/18/98	DA*26679*7	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	58	120	81-121
02/18/98	DA*26679*7	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	54	110	74-121
02/18/98	DA*26679*8	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	52	100	70-121
02/18/98	**DA*26679*8**	**98811*SUR**	**TOLUENE-D8 (SW846)**	**UG/KG-**	**50**	**82**	**160**	**81-121**
02/18/98	DA*26679*8	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	41	82	74-121
02/18/98	DA*26679*5*D	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	53	110	70-121
02/18/98	DA*26679*5*D	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	48	96	81-121
02/18/98	DA*26679*5*D	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	51	100	74-121
02/18/98	DA*26679*9	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	52	100	70-121
02/18/98	**DA*26679*9**	**98811*SUR**	**TOLUENE-D8 (SW846)**	**UG/KG-**	**50**	**74**	**150**	**81-121**
02/18/98	DA*26679*9	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	45	90	74-121
02/18/98	DA*26679*10	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	57	110	70-121
02/18/98	**DA*26679*10**	**98811*SUR**	**TOLUENE-D8 (SW846)**	**UG/KG-**	**50**	**68**	**140**	**81-121**
02/18/98	DA*26679*10	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	46	92	74-121
02/18/98	DA*26679*11	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	59	120	70-121
02/18/98	DA*26679*11	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	54	110	81-121
02/18/98	DA*26679*11	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	51	100	74-121
03/01/98	**DA*26679*1*D**	**98813*SUR**	**1,2-DICHLOROETHANE-D4 (SW846)**	**UG/KG-**	**50**	**10.0**	**20**	**70-121**

KATALYST BATCH : P41047

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
03/01/98	DA*26679*1*D	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	12	24	81-121
03/01/98	DA*26679*1*D	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	17	34	74-121
03/02/98	DA*26679*2*D	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	31	62	70-121
03/02/98	DA*26679*2*D	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	38	76	81-121
03/02/98	DA*26679*2*D	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	66	130	74-121
03/02/98	DA*26679*4*D	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	36	72	70-121
03/02/98	DA*26679*4*D	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	42	84	81-121
03/02/98	DA*26679*4*D	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	67	130	74-121
03/02/98	DA*26679*6*D	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	36	72	70-121
03/02/98	DA*26679*6*D	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	43	86	81-121
03/02/98	DA*26679*6*D	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	64	130	74-121
03/02/98	DA*26679*7*D	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	35	70	70-121
03/02/98	DA*26679*7*D	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	42	84	81-121
03/02/98	DA*26679*7*D	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	67	130	74-121
03/02/98	DA*26679*10*D	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	36	72	70-121
03/02/98	DA*26679*10*D	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	46	92	81-121
03/02/98	DA*26679*10*D	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	73	150	74-121
03/02/98	DA*26679*11*D	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	36	72	70-121
03/02/98	DA*26679*11*D	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	44	88	81-121
03/02/98	DA*26679*11*D	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	66	130	74-121
03/02/98	DA*26679*3*D	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	6300	3700	59	70-121
03/02/98	DA*26679*3*D	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	6300	4600	73	81-121
03/02/98	DA*26679*3*D	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	6300	8500	130	74-121

KATALYST BATCH : P41047

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P41047 Analysis Date: 03/02/98 Analyst: TROY AVERY Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	34237*8240/5030
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X		
Surrogate present?	X		
Surrogate within acceptance criteria?		X	98813*SUR 98811*SUR 98403*SUR

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40939
ANALYSIS : SW7060

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 11:07
ANALYSIS DATE/TIME : 02/17/98
EXTRACT DATE : 02/12/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26679	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26679*11	S17B5 14'-16'	02/17/98	04:01PM

KATALYST BATCH : P40939

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/17/98	CCB*980217AS*1	1003*7060/3050	Arsenic	MG/KG-	0.001
02/17/98	CCB*980217AS*2	1003*7060/3050	Arsenic	MG/KG-	0.0006

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	CCV*980217AS*1	1003*7060/3050	Arsenic	MG/KG-	0.020	0.019	95.0	90-110
02/17/98	CCV*980217AS*2	1003*7060/3050	Arsenic	MG/KG-	0.020	0.019	95.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	ICV*980217AS*1	1003*7060/3050	Arsenic	MG/KG-	0.030	0.027	90.0	90-110
02/17/98	ICV*980217AS*2	1003*7060/3050	Arsenic	MG/KG-	0.030	0.028	93.3	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	LCS*98MP27080*1	1003*7060/3050	Arsenic	MG/KG-	2.00	1.83	91.5	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/17/98	MB*98MP27080*1	1003*7060/3050	Arsenic	MG/KG-	0.033	5.00

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/17/98	RP*26679*11	1003*7060/3050	Arsenic	MG/KG-	<7.64	7.73			20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/17/98	**SPM1*26679*11**	**1003**	**Arsenic**	**MG/KG-**	**5.32**	**3.04**	**1.83**	**60.2**	**75-125**		
02/17/98	**SPM2*26679*11**	**1003**	**Arsenic**	**MG/KG-**	**5.32**	**3.01**	**2.25**	**74.8**	**75-125**	**21.6**	**20**

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	SPX*26679*11	1003*7060/3050	Arsenic	MG/KG-	15.3	17.5	114.4	85-115

KATALYST BATCH : P40939

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40939 Analysis Date: 02/17/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCB present?	X		
CCB within acceptance criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	1003*7060/3050
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?		X	1003*7060/3050
Analytical spike present?	X		
Analytical spike within acceptance criteria?	X		

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40906
ANALYSIS : SW7740

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 11:07
ANALYSIS DATE/TIME : 02/16/98
EXTRACT DATE : 02/12/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26679	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26679*11	S17B5 14'-16'	02/16/98	07:22PM

KATALYST BATCH : P40906

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/16/98	CCB*980216SE*1	1148*7740/3050	Selenium	MG/KG-	ND
02/16/98	CCB*980216SE*2	1148*7740/3050	Selenium	MG/KG-	ND
02/17/98	CCB*980217SE*3	1148*7740/3050	Selenium	MG/KG-	0.0003

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	CCV*980216SE*1	1148*7740/3050	Selenium	MG/KG-	0.020	0.019	95.0	90-110
02/16/98	CCV*980216SE*2	1148*7740/3050	Selenium	MG/KG-	0.020	0.019	95.0	90-110
02/17/98	CCV*980217SE*3	1148*7740/3050	Selenium	MG/KG-	0.020	0.020	100.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	ICV*980216SE*1	1148*7740/3050	Selenium	MG/KG-	0.030	0.031	103	90-110
02/17/98	ICV*980217SE*2	1148*7740/3050	Selenium	MG/KG-	0.030	0.030	100.0	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	LCS*98MP27080*1	1148*7740/3050	Selenium	MG/KG-	2.00	2.16	108.0	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/16/98	MB*98MP27080*1	1148*7740/3050	Selenium	MG/KG-	ND	0.500

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/16/98	RP*26679*11	1148*7740/3050	Selenium	MG/KG-	1.60	1.53			20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/16/98	**SPM1*26679*11**	**1148**	**Selenium**	**MG/KG-**	**1.60**	**3.04**	**2.10**	**69.1**	**75-125**		
02/16/98	**SPM2*26679*11**	**1148**	**Selenium**	**MG/KG-**	**1.60**	**3.01**	**2.21**	**73.4**	**75-125**	**6.20**	**20**

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	**SPX*26679*11**	**1148*7740/3050**	**Selenium**	**MG/KG-**	**3.06**	**2.55**	**83.3**	**85-115**

KATALYST BATCH : P40906

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40906 Analysis Date: 02/16/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCB present?	X		
CCB within acceptance criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	1148*7740/3050 SPX*26679*11 Exceeds criteria. (Recovery Limit [redacted]
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?		X	1148*7740/3050 SPX*26679*11 Exceeds criteria. (Recovery Limit [redacted]
Analytical spike present?	X		
Analytical spike within acceptance criteria?		X	1148*7740/3050

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

CHAIN OF CUSTODY DOCUMENTATION

ESE Environmental Science & Engineering, Inc.
A CILCORP Company
11665 Lilburn Park Road, St. Louis, MO 63146-3535
Telephone: (314) 567-4600 -- Fax: (314) 567-5030

FOR LAB USE ONLY
Project Number: _____

Chain of Custody Record

Client: QST
Address: 11665 Lilburn Park RD
St. Louis, MO 63146
Phone #: 314 567-4600 Fax #: (__)___-____
P.O. #: _____
Client Contact: Scott George
Project # / Location: Boeing

Sample Type:
1. Water
2. Soil
3. Sludge
4. Oil
5. Tissue
Other : _____

Container Type:
P - Plastic
G - Glass
V - VOC

Preservative:
1. None 4. NaOH
2. H_2SO_4 5. HCl
3. HNO_3

Sample I.D. (10 Characters ONLY)	Sample Type	Container Size	Container Type	Container No.	Sampling Date	Sampling Time	Preservative	Lab I.D.	Analyses: VOCs	Metals	pH	Specific Conductivity	Temperature	Comments
S17B12.5'-4'	Soil	8oz 4oz	G	2	2-4-98	0940	Ice	26674*1	X	X				
S17B1 12'-13'						1005		*2	X	X				
S17B1 16'-17'						1025		*3	X	X				
S17B2 3'-4.5'						1110		*4	X	X				
S17B2 11'-12.5'						1135		*5	X	X				
S17B3 10.5'-11.5'						1350		*6	X	X				
S17B4 6'-7'						1445		*7	X	X				
S17B4 11.5'-13.5'						1520		*8	X	X				
S17B4 14'-16'	↓	↓	↓	↓	↓	1530	↓	*9	X	X				
S17B12.5'-4'D	Soil	8oz 4oz	G	2	2-4-98	0940	Ice	*10	X	X				

Relinquished By: Scott George
Date: 2 -- 4 -- 98
Time: 18:00
Received By:
Date: -- --
Time: :

Relinquished By:
Date: -- --
Time: :
Received For Lab By: Chris Ohland
Date: 2 -- 5 --98
Time: 15 : 45

FOR LAB USE ONLY
Samples Received Chilled
☐ Yes ☐ No
_____ °C

Copies: White - Client Canary - Lab Receiving Pink - Lab File Goldenrod - Retained by Sampler

SPECIAL INSTRUCTIONS:

KATALYST
ANALYTICAL TECHNOLOGIES, INC.

March 19, 1998

Mr. Scott George
QST Environmental
11665 Lilburn Park Road
St. Louis, MO 63146

Dear Mr. George,

Katalyst Analytical Technologies, Inc., appreciates the opportunity to provide the attached report of analyses for Katalyst sample delivery group #26682, received 02/06/98 by our laboratory. This deliverable includes case narrative, tabulated results, QC summary, dates report and chain of custody documentation.

Should you have any questions regarding this data, please contact me at (309) 589-8004.

Sincerely,

KATALYST ANALYTICAL TECHNOLOGIES, INC.

Dan Moore
Project Manager

Attachments

8901 N. Industrial Road • Suite 100 • Peoria, IL 61615-1581 • Phone: (309) 589-8000 • Fax: (309) 692-5232 • www.katalyst1.com

CASE NARRATIVE

KATALYST
ANALYTICAL TECHNOLOGIES, INC.

CASE NARRATIVE/VALIDATION REPORT

QST Environmental / Boeing
Fg# 26682

Katalyst Analytical Technologies, Inc., received 8 soil and 2 water samples on 2/6/98 on ice and in good condition. Per the client's instructions, PAH analyses were added to samples 26682*2 thru *7 after receipt. The sample set was designated as one sample delivery batch, 26682 for total and dissolved RCRA Metals, Volatile Organics, Polynuclear Aromatic Hydrocarbons, Iowa Methods OA-1 and OA-2 analyses.

LAB NO.	CLIENT ID	DATE COLLECTED	DATE RECEIVED
26682*1	S21MW1	2/5/98	2/6/98
26682*2	S31B1 6.2'-7'	2/5/98	2/6/98
26682*3	S31B 8'-8.5'	2/5/98	2/6/98
26682*4	S31B2 5.2'-6'	2/5/98	2/6/98
26682*5	S31B2 7.5'-8.5'	2/5/98	2/6/98
26682*6	S31B3 1.5'-2.5'	2/5/98	2/6/98
26682*7	S31B3 6.5'-8.5'	2/5/98	2/6/98
26682*8	S17B5 5.5'-7'	2/5/98	2/6/98
26682*9	S17B6 9.5'-11'	2/5/98	2/6/98
26682*10	S17MW1	2/5/98	2/6/98

Dissolved RCRA Metals (SW 846 6010/7470) Project Summary:

The samples were digested and analyzed within method holding-times.

Dissolved RCRA Metals (SW 846 6010/7470) QC Summary:

All holding time criteria were met.

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Dissolved RCRA Metals (SW 846 6010/7470) QC Summary Cont.:

All initial and continuing calibration standards met the criteria of the methods.

The laboratory method blanks did not contain any target analytes of interest.

The Laboratory Control Sample (LCS) demonstrated recoveries within method specified limits.

The replicates were within method specified limits with the exception of the following: Mercury. There was insufficient sample to perform a sample replicate.

Several analyses required serial dilutions to be performed. In some instances, the serial dilution did not meet method acceptance criteria. Post digestion spikes and the method of standard additions were utilized to verify matrix interference and quantify sample and QC results, where applicable.

The associated matrix spike and duplicates (MS/MSD) were performed on samples 26682*10 from this field group. All MS/MSD recoveries were within method specified limits. There was insufficient sample to perform an MS/MSD with the mercury analysis. The laboratory control sample verified method and instrument performance.

Total RCRA Metals (SW 846 6010/7470) Project Summary:

The samples were digested and analyzed within method holding-times.

Total RCRA Metals (SW 846 6010/7470) QC Summary:

All holding time criteria were met.

All initial and continuing calibration standards met the criteria of the methods.

The laboratory method blanks did not contain any target analytes of interest.

The Laboratory Control Sample (LCS) demonstrated recoveries within method specified limits.

The replicates were within method specified limits with the exception of Barium, Chromium, Lead, Selenium and Mercury. The replicates were not within method specified limits due to the sample containing high levels or trace concentrations of the element. Post digestion spikes were performed.

Several analyses required serial dilutions to be performed. In some instances, the serial dilution did not meet method acceptance criteria. Post digestion spikes and the method of standard additions were utilized to verify matrix interference and quantify sample and QC results, where applicable.

The associated matrix spike and duplicates (MS/MSD) were performed on samples 26679*2, 26679*11, and 26682*2 from this project. All MS/MSD recoveries were within method specified limits except for lead, arsenic, selenium, and mercury in selected MS/MSDs. The lead and arsenic MS/MSD (26679*2 and 26679*11) recoveries are not within method specified limits due to the concentrations of these elements in the associate sample overwhelming the amount spiked. A post digestion spike was performed which was within method specified limits. There was insufficient sample to perform an MS/MSD with the mercury analysis. The laboratory control sample verified method and instrument performance.

Volatile Organics (8240) Project Summary:

The samples were analyzed on 02/19/98, within the method specified hold-time.

Volatile Organics (8240) QC Summary:

All holding time criteria were met.

The laboratory method blank did not contain any analytes of interest above the reporting limit.

GC/MS tuning ion abundance criteria for Bromofluorbenzene (BFB) was within the established control limits.

All initial and continuing calibration standards met the criteria of the method.

The surrogate spike recoveries were within method specified limits.

All spike recoveries in the laboratory control sample were within method specified limits.

The associated matrix spike and duplicate were performed on sample 26668*2 and 26653*11 from this project. The matrix spike and duplicate recoveries were within method specified limits except for benzene in 26688*2MS. The benzene recovery was only 1.2% above method specified limits for sample 26688*2MS. Additionally, the amount of trichloroethene and toluene spiked in 26688*10MS/MSD is insignificant compared to the amount found in the associated sample. The laboratory control sample verifies method and instrument.

A review of the data indicated that the retention times and mass spectra of the sample analytes are in agreement with the calibration standards.

PAH (SW 846 8310) Project Summary:

The samples were extracted and analyzed within the method specified hold-time.

PAH (SW 846 8310) QC Summary:

All holding time criteria were met.

The laboratory method blank did not contain any analytes of interest above the reporting limit.

All initial and continuing calibration standards met the criteria of the method.

The surrogate spike recoveries are within method specified limits.

All spike recoveries in the laboratory control sample were within method specified limits.

BTEX/GRO (Iowa OA-1) Project Summary:

The samples were analyzed on 02/09/98, within the method specified hold-time.

BTEX/GRO (Iowa OA-1) QC Summary:

All holding time criteria were met.

BTEX/GRO (Iowa OA-1) QC Summary Cont.:

The laboratory method blank did not contain any analytes of interest above the reporting limit.

All initial and continuing calibration standards met the criteria of the method.

The surrogate spike recoveries were not within method specified limits. The analysis was repeated and a similar surrogate recovery was obtained. Matrix interference is suspected.

All spike recoveries in the laboratory control sample were within method specified limits.

The associated matrix spike and duplicate was performed on sample 26653*11 from this project. The matrix spike and duplicate recoveries were not within method specified limits. The analyses were repeated with similar recoveries. Matrix interference is suspected.

DRO (Iowa OA-2) Project Summary:

The samples were analyzed on 02/13/98, within the method specified hold-time.

DRO (Iowa OA-2) QC Summary:

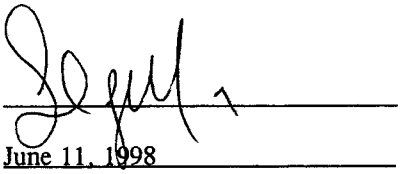
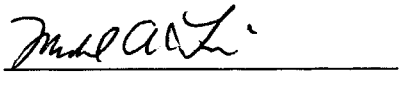
All holding time criteria were met.

The laboratory method blank did not contain any analytes of interest above the reporting limit.

All initial and continuing calibration standards met the criteria of the method.

The spike recovery in the laboratory control sample were within method specified limits.

Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Signature:		Name:	Daniel J. Moore
Date	June 11, 1998	Title:	Project Manager
Signature:		Name:	Michael Travis
Date	June 11, 1998	Title:	QA Manager

ANALYTICAL RESULTS

PROJECT NUMBER 110S01 5100 PROJECT NAME QST ST. LOUIS/BOEING
FIELD GROUP LAB COORDINATOR Daniel Moore

CLIENT SAMPLE ID'S:	S21MW1
FIELD GROUP:	26682
SEQUENCE #:	1
DATE COLLECTED:	02/05/98
TIME COLLECTED:	00:00

PARAMETERS	UNITS	METHOD	
Barium,dissolved	MG/L	SW6010	0.35
Cadmium,dissolved	MG/L	SW6010	<0.0050
Chromium,dissolved	MG/L	SW6010	<0.010
Silver,dissolved	MG/L	SW6010	<0.010
Arsenic,dissolved	MG/L	SW7060	<0.050
Lead,dissolved	MG/L	SW7421	<0.0030
Mercury,dissolved	MG/L	SW7470	<0.00020
Selenium,dissolved	MG/L	SW7740	0.0064

CLIENT SAMPLE ID'S:			S31B1 6.2'-7'	S31B1 8'-8.5'	S31B2 5.2'-6'
FIELD GROUP:			26682	26682	26682
SEQUENCE #:			2	3	4
DATE COLLECTED:			02/05/98	02/05/98	02/05/98
TIME COLLECTED:			08:30	08:35	09:05
PARAMETERS	UNITS	METHOD			
Acenaphthene	UG/KG-DRY	SW8310	<42.5	<45.4	<41.4
Acenaphthylene	UG/KG-DRY	SW8310	<42.5	<45.4	<41.4
Anthracene	UG/KG-DRY	SW8310	<4.25	<4.54	<4.14
Benzo(a)anthracene	UG/KG-DRY	SW8310	<4.25	<4.54	<4.14
Benzo(a)pyrene	UG/KG-DRY	SW8310	<4.25	<4.54	<4.14
Benzo(b)fluoranthene	UG/KG-DRY	SW8310	<4.25	<4.54	<4.14
Benzo(g,h,i)perylene	UG/KG-DRY	SW8310	<4.25	<4.54	<4.14
Benzo(k)fluoranthene	UG/KG-DRY	SW8310	<4.25	<4.54	<4.14
Chrysene	UG/KG-DRY	SW8310	<4.25	<4.54	<4.14
Dibenz(a,h)anthracene	UG/KG-DRY	SW8310	<4.25	<4.54	<4.14
Fluoranthene	UG/KG-DRY	SW8310	<4.25	<4.54	<4.14
Fluorene	UG/KG-DRY	SW8310	<42.5	<45.4	<41.4
Indeno(1,2,3-cd) pyrene	UG/KG-DRY	SW8310	<4.25	<4.54	<4.14
Naphthalene	UG/KG-DRY	SW8310	<42.5	<45.4	<41.4
Phenanthrene	UG/KG-DRY	SW8310	5.07	<4.54	<4.14
Pyrene	UG/KG-DRY	SW8310	<4.25	<4.54	<4.14
Barium	MG/KG-DRY	SW6010	180	97	140
Cadmium	MG/KG-DRY	SW6010	<0.64	<0.68	<0.62
Chromium	MG/KG-DRY	SW6010	11	31	12
Silver	MG/KG-DRY	SW6010	<1.3	<1.4	<1.2
Arsenic	MG/KG-DRY	SW7060	<6.3	<6.7	6.6
Lead	MG/KG-DRY	SW7421	9.8	14	11
Mercury	MG/KG-DRY	SW7471	0.050	0.040	0.040
Selenium	MG/KG-DRY	SW7740	<0.63	<0.67	2.3
Moisture	%	E160.3	21.6	26.6	19.5
Acetone	UG/KG-DRY	SW8240	<13	<14	<12
Xylenes (total)	UG/KG-DRY	SW8240	<6.4	<6.8	<6.2

CLIENT SAMPLE ID'S:			S31B1 6.2'-7'	S31B1 8'-8.5'	S31B2 5.2'-6'
FIELD GROUP:			26682	26682	26682
SEQUENCE #:			2	3	4
DATE COLLECTED:			02/05/98	02/05/98	02/05/98
TIME COLLECTED:			08:30	08:35	09:05
PARAMETERS	UNITS	METHOD			
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.4	<6.8	<6.2
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.4	<6.8	<6.2
Tetrachloroethene	UG/KG-DRY	SW8240	8.0	28	9.4

CLIENT SAMPLE ID'S:			S31B2 7.5'-8.5'	S31B3 1.5'-2.5'
FIELD GROUP:			26682	26682
SEQUENCE #:			5	6
DATE COLLECTED:			02/05/98	02/05/98
TIME COLLECTED:			09:10	09:25
PARAMETERS	UNITS	METHOD		
Acenaphthene	UG/KG-DRY	SW8310	<43.2	<42.5
Acenaphthylene	UG/KG-DRY	SW8310	<43.2	<42.5
Anthracene	UG/KG-DRY	SW8310	<4.32	<4.25
Benzo(a)anthracene	UG/KG-DRY	SW8310	<4.32	<4.25
Benzo(a)pyrene	UG/KG-DRY	SW8310	<4.32	<4.25
Benzo(b)fluoranthene	UG/KG-DRY	SW8310	<4.32	<4.25
Benzo(g,h,i)perylene	UG/KG-DRY	SW8310	<4.32	<4.25
Benzo(k)fluoranthene	UG/KG-DRY	SW8310	<4.32	<4.25
Chrysene	UG/KG-DRY	SW8310	<4.32	<4.25
Dibenz(a,h)anthracene	UG/KG-DRY	SW8310	<4.32	<4.25
Fluoranthene	UG/KG-DRY	SW8310	<4.32	<4.25
Fluorene	UG/KG-DRY	SW8310	<43.2	<42.5
Indeno(1,2,3-cd) pyrene	UG/KG-DRY	SW8310	<4.32	<4.25
Naphthalene	UG/KG-DRY	SW8310	<43.2	<42.5
Phenanthrene	UG/KG-DRY	SW8310	<4.32	<4.25
Pyrene	UG/KG-DRY	SW8310	<4.32	<4.25
Barium	MG/KG-DRY	SW6010	96	190
Cadmium	MG/KG-DRY	SW6010	<0.64	<0.63
Chromium	MG/KG-DRY	SW6010	12	15
Silver	MG/KG-DRY	SW6010	<1.3	<1.3
Arsenic	MG/KG-DRY	SW7060	<6.5	8.8
Lead	MG/KG-DRY	SW7421	6.0	13
Mercury	MG/KG-DRY	SW7471	0.050	0.060
Selenium	MG/KG-DRY	SW7740	<0.65	<0.63
Moisture	%	E160.3	22.8	21.6
Acetone	UG/KG-DRY	SW8240	<13	14

CLIENT SAMPLE ID'S:			S31B2 7.5'-8.5'	S31B3 1.5'-2.5'
FIELD GROUP:			26682	26682
SEQUENCE #:			5	6
DATE COLLECTED:			02/05/98	02/05/98
TIME COLLECTED:			09:10	09:25
PARAMETERS	UNITS	METHOD		
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.5	<6.4
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.5	<6.4
Tetrachloroethene	UG/KG-DRY	SW8240	<6.5	<6.4
Xylenes (Total)	UG/KG-DRY	SW8240	<6.5	<6.4

CLIENT SAMPLE ID'S:			S31B3 6.5'-8.5'
FIELD GROUP:			26682
SEQUENCE #:			7
DATE COLLECTED:			02/05/98
TIME COLLECTED:			09:45
PARAMETERS	UNITS	METHOD	
Acenaphthene	UG/KG-DRY	SW8310	<45.6
Acenaphthylene	UG/KG-DRY	SW8310	<45.6
Anthracene	UG/KG-DRY	SW8310	<4.56
Benzo(a)anthracene	UG/KG-DRY	SW8310	<4.56
Benzo(a)pyrene	UG/KG-DRY	SW8310	<4.56
Benzo(b)fluoranthene	UG/KG-DRY	SW8310	<4.56
Benzo(g,h,i)perylene	UG/KG-DRY	SW8310	<4.56
Benzo(k)fluoranthene	UG/KG-DRY	SW8310	<4.56
Chrysene	UG/KG-DRY	SW8310	<4.56
Dibenz(a,h)anthracene	UG/KG-DRY	SW8310	<4.56
Fluoranthene	UG/KG-DRY	SW8310	<4.56
Fluorene	UG/KG-DRY	SW8310	<45.6
Indeno(1,2,3-cd) pyrene	UG/KG-DRY	SW8310	<4.56
Naphthalene	UG/KG-DRY	SW8310	<45.6
Phenanthrene	UG/KG-DRY	SW8310	<4.56
Pyrene	UG/KG-DRY	SW8310	<4.56
Barium	MG/KG-DRY	SW6010	140
Cadmium	MG/KG-DRY	SW6010	<0.67
Chromium	MG/KG-DRY	SW6010	12
Silver	MG/KG-DRY	SW6010	<1.3
Arsenic	MG/KG-DRY	SW7060	<6.7
Lead	MG/KG-DRY	SW7421	7.9
Mercury	MG/KG-DRY	SW7471	0.050
Selenium	MG/KG-DRY	SW7740	<0.67
Moisture	%	E160.3	26.9
Acetone	UG/KG-DRY	SW8240	<14
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.8
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.8
Tetrachloroethene	UG/KG-DRY	SW8240	<6.8
Xylenes (Total)	UG/KG-DRY	SW8240	<6.8

CLIENT SAMPLE ID'S:			S17B5 5.5'-7'	S17B6 9.5'-11'
FIELD GROUP:			26682	26682
SEQUENCE #:			8	9
DATE COLLECTED:			02/05/98	02/05/98
TIME COLLECTED:			13:40	13:40
PARAMETERS	UNITS	METHOD		
Moisture	%	E160.3	22.6	24.3
Acetone	UG/KG-DRY	SW8240	42	15
Benzene	UG/KG-DRY	SW8240	<6.5	<6.6
Bromodichloromethane	UG/KG-DRY	SW8240	<6.5	<6.6
Bromoform	UG/KG-DRY	SW8240	<6.5	<6.6
Bromomethane	UG/KG-DRY	SW8240	<13	<13
2-Butanone	UG/KG-DRY	SW8240	<13	<13
Carbon Disulfide	UG/KG-DRY	SW8240	<6.5	<6.6
Carbon Tetrachloride	UG/KG-DRY	SW8240	<6.5	<6.6
Chlorobenzene	UG/KG-DRY	SW8240	<6.5	<6.6
Chloroethane	UG/KG-DRY	SW8240	<13	<13
Chloroform	UG/KG-DRY	SW8240	<6.5	<6.6
Chloromethane	UG/KG-DRY	SW8240	<13	<13
Dibromochloromethane	UG/KG-DRY	SW8240	<6.5	<6.6
1,1-Dichloroethane	UG/KG-DRY	SW8240	<6.5	<6.6
1,2-Dichloroethane	UG/KG-DRY	SW8240	<6.5	<6.6
1,1-Dichloroethene	UG/KG-DRY	SW8240	<6.5	<6.6
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.5	<6.6
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.5	<6.6
1,2-Dichloropropane	UG/KG-DRY	SW8240	<6.5	<6.6
cis-1,3-Dichloropropene	UG/KG-DRY	SW8240	<6.5	<6.6
trans-1,3-Dichloropropene	UG/KG-DRY	SW8240	<6.5	<6.6
Ethylbenzene	UG/KG-DRY	SW8240	<6.5	<6.6
2-Hexanone	UG/KG-DRY	SW8240	<13	<13
4-Methyl-2-pentanone	UG/KG-DRY	SW8240	<13	<13
Methylene Chloride	UG/KG-DRY	SW8240	<6.5	<6.6
Styrene	UG/KG-DRY	SW8240	<6.5	<6.6

CLIENT SAMPLE ID'S:			S17B5 5.5'-7'	S17B6 9.5'-11'
FIELD GROUP:			26682	26682
SEQUENCE #:			8	9
DATE COLLECTED:			02/05/98	02/05/98
TIME COLLECTED:			13:40	13:40
PARAMETERS	UNITS	METHOD		
1,1,2,2-Tetrachloroethane	UG/KG-DRY	SW8240	<6.5	<6.6
Tetrachloroethene	UG/KG-DRY	SW8240	35	<6.6
Toluene	UG/KG-DRY	SW8240	<6.5	<6.6
1,1,1-Trichloroethane	UG/KG-DRY	SW8240	<6.5	<6.6
1,1,2-Trichloroethane	UG/KG-DRY	SW8240	<6.5	<6.6
Trichloroethene	UG/KG-DRY	SW8240	<6.5	<6.6
Vinyl Acetate	UG/KG-DRY	SW8240	<6.5	<6.6
Vinyl Chloride	UG/KG-DRY	SW8240	<13	<13
Xylenes (total)	UG/KG-DRY	SW8240	<6.5	<6.6
Gasoline Range Organics	UG/KG-WET	OA-1/5030	180000	25000
Benzene	UG/KG-WET	OA-1	<11	<11
Ethylbenzene	UG/KG-WET	OA-1	<8.8	<8.8
Toluene	UG/KG-WET	OA-1	<6.3	<6.3
m-and/or p-Xylene	UG/KG-WET	OA-1	<18	<18
o-Xylene	UG/KG-WET	OA-1	<8.8	<8.8
Xylenes, Total	UG/KG-WET	OA-1	<27	<27
Total Extractable Hydrocarbons	MG/KG-WET	OA-2	1900	450

CLIENT SAMPLE ID'S:			S17MW1	S17MW1DL
FIELD GROUP:			26682	26682
SEQUENCE #:			10	10 DL
DATE COLLECTED:			02/05/98	02/05/98
TIME COLLECTED:			00:00	00:00
PARAMETERS	UNITS	METHOD		
Barium,dissolved	MG/L	SW6010	0.44	NA
Barium,total	MG/L	SW6010	0.44	NA
Cadmium,dissolved	MG/L	SW6010	<0.0050	NA
Cadmium,total	MG/L	SW6010	<0.0050	NA
Chromium,dissolved	MG/L	SW6010	<0.010	NA
Chromium,total	MG/L	SW6010	<0.010	NA
Silver,dissolved	MG/L	SW6010	<0.010	NA
Silver,total	MG/L	SW6010	<0.010	NA
Arsenic,dissolved	MG/L	SW7060	<0.050	NA
Arsenic,total	MG/L	SW7060	0.0037	NA
Lead,dissolved	MG/L	SW7421	<0.0030	NA
Lead,total	MG/L	SW7421	0.0042	NA
Mercury,dissolved	MG/L	SW7470	0.00034	NA
Mercury,total	MG/L	SW7470	<0.00020	NA
Selenium,dissolved	MG/L	SW7740	0.011	NA
Selenium,total	MG/L	SW7740	<0.0050	NA
Acetone	UG/L	SW8240	55	NA
Benzene	UG/L	SW8240	21	NA
Bromodichloromethane	UG/L	SW8240	<5.0	NA

DL - Dilution

CLIENT SAMPLE ID'S:			S17MW1	S17MW1DL
FIELD GROUP:			26682	26682
SEQUENCE #:			10	10 DL
DATE COLLECTED:			02/05/98	02/05/98
TIME COLLECTED:			00:00	00:00
PARAMETERS	UNITS	METHOD		
Bromoform	UG/L	SW8240	<5.0	NA
Bromomethane	UG/L	SW8240	<10	NA
2-Butanone	UG/L	SW8240	<10	NA
Carbon Disulfide	UG/L	SW8240	<5.0	NA
Carbon Tetrachloride	UG/L	SW8240	<5.0	NA
Chlorobenzene	UG/L	SW8240	<5.0	NA
Chloroethane	UG/L	SW8240	<10	NA
Chloroform	UG/L	SW8240	<5.0	NA
Chloromethane	UG/L	SW8240	<10	NA
Dibromochloromethane	UG/L	SW8240	<5.0	NA
1,1-Dichloroethane	UG/L	SW8240	11	NA
1,2-Dichloroethane	UG/L	SW8240	<5.0	NA
1,1-Dichloroethene	UG/L	SW8240	180	NA
cis-1,2-Dichloroethene	UG/L	SW8240	11000E	97000X
1,2-Dichloropropane	UG/L	SW8240	<5.0	NA
cis-1,3-Dichloropropene	UG/L	SW8240	<5.0	NA
trans-1,3-Dichloropropene	UG/L	SW8240	<5.0	NA
Ethylbenzene	UG/L	SW8240	35	NA
2-Hexanone	UG/L	SW8240	<10	NA
4-Methyl-2-pentanone	UG/L	SW8240	25	NA
Methylene Chloride	UG/L	SW8240	8.5	NA
Styrene	UG/L	SW8240	<5.0	NA
1,1,2,2-Tetrachloroethane	UG/L	SW8240	<5.0	NA
Tetrachloroethene	UG/L	SW8240	20000E	210000X
Toluene	UG/L	SW8240	1200E	<25000X
1,1,1-Trichloroethane	UG/L	SW8240	9.3	NA
1,1,2-Trichloroethane	UG/L	SW8240	<5.0	NA
Trichloroethene	UG/L	SW8240	4500E	<25000X
Vinyl Acetate	UG/L	SW8240	<5.0	NA

DL - Dilution
E - Exceeded Calibration Range
X - Please see case narrative

CLIENT SAMPLE ID'S:			S17MW1	S17MW1DL
FIELD GROUP:			26682	26682
SEQUENCE #:			10	10 DL
DATE COLLECTED:			02/05/98	02/05/98
TIME COLLECTED:			00:00	00:00
PARAMETERS	UNITS	METHOD		
Vinyl Chloride	UG/L	SW8240	3600E	<50000X
Xylenes (total)	UG/L	SW8240	160	NA
trans-1,2-dichloroethene	UG/L	SW8240	150	NA

DL - Dilution
E - Exceeded Calibration Range
X - Please see case narrative

03/05/98

Katalyst Analytical Technologies, Inc.
QST ST. LOUIS 26682 DATES REPORT

SAMPLE	STATION ID	COLLECT. TIME	RECEIPT	CLASSIFICATION	LEACHATE	EXTRACTION	DAYS, ACT/HT ANALYSIS	LCH	EXT	ANL	BATCH
26682*1	S21MW1	02/05/98 12:00A	02/06/98	Barium,dissolved-ICP	NA	NA	02/12/98 07:10P	NA	NA	7/180	P40886
				Cadmium,dissolved-ICP	NA	NA	02/12/98 07:10P	NA	NA	7/180	P40886
				Chromium,dissolved-ICP	NA	NA	02/12/98 07:10P	NA	NA	7/180	P40886
				Silver,dissolved-ICP	NA	NA	02/12/98 07:10P	NA	NA	7/180	P40886
				Arsenic,dissolved-GFAA	NA	NA	02/10/98 04:56P	NA	NA	5/180	P40860
				Mercury,dissolved	NA	NA	02/11/98 06:48P	NA	NA	6/28	P40871
				Selenium,dissolved-GFAA	NA	NA	02/09/98 09:29P	NA	NA	4/180	P40849
				Lead,dissolved-GFAA	NA	NA	02/12/98 05:27P	NA	NA	7/180	P40905
26682*2	S31B1 6.2'-7'	02/05/98 08:30A	02/06/98	Barium-ICP	NA	NA	02/16/98 06:21P	NA	NA	11/180	P40900
				Cadmium-ICP	NA	NA	02/16/98 06:21P	NA	NA	11/180	P40900
				Chromium-ICP	NA	NA	02/17/98 05:30P	NA	NA	12/180	P40917
				Lead-GFAA	NA	NA	02/16/98 09:30P	NA	NA	11/180	P40912
				Silver-ICP	NA	NA	02/16/98 06:21P	NA	NA	11/180	P40900
				Arsenic-GFAA	NA	NA	02/18/98 02:46P	NA	NA	13/180	P40940
				Selenium-GFAA	NA	NA	02/12/98 03:44P	NA	NA	7/180	P40936
				Mercury	NA	NA	02/11/98 03:25P	NA	NA	6/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	4/180	P40844
				PNA	NA	02/10/98 04:30P	02/14/98 09:29P	NA	5/14	4/40	P40892
				Volatiles	NA	NA	02/19/98 03:15P	NA	NA	14/14	P41047
26682*3	S31B1 8'-8.5'	02/05/98 08:35A	02/06/98	Barium-ICP	NA	NA	02/16/98 06:49P	NA	NA	11/180	P40900
				Cadmium-ICP	NA	NA	02/16/98 06:49P	NA	NA	11/180	P40900
				Chromium-ICP	NA	NA	02/17/98 05:57P	NA	NA	12/180	P40917
				Lead-GFAA	NA	NA	02/16/98 09:41P	NA	NA	11/180	P40912
				Silver-ICP	NA	NA	02/16/98 06:49P	NA	NA	11/180	P40900
				Arsenic-GFAA	NA	NA	02/18/98 03:09P	NA	NA	13/180	P40940
				Selenium-GFAA	NA	NA	02/12/98 03:56P	NA	NA	7/180	P40936
				Mercury	NA	NA	02/11/98 03:34P	NA	NA	6/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	4/180	P40844
				PNA	NA	02/10/98 04:30P	02/14/98 10:25P	NA	5/14	4/40	P40892
				Volatiles	NA	NA	02/19/98 04:45P	NA	NA	14/14	P41047
26682*4	S31B2 5.2'-6'	02/05/98 09:05A	02/06/98	Barium-ICP	NA	NA	02/16/98 06:53P	NA	NA	11/180	P40900
				Cadmium-ICP	NA	NA	02/16/98 06:53P	NA	NA	11/180	P40900
				Chromium-ICP	NA	NA	02/17/98 06:01P	NA	NA	12/180	P40917
				Lead-GFAA	NA	NA	02/17/98 03:18P	NA	NA	12/180	P40912
				Silver-ICP	NA	NA	02/16/98 06:53P	NA	NA	11/180	P40900
				Arsenic-GFAA	NA	NA	02/18/98 03:21P	NA	NA	13/180	P40940
				Selenium-GFAA	NA	NA	02/12/98 04:07P	NA	NA	7/180	P40936
				Mercury	NA	NA	02/11/98 03:37P	NA	NA	6/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	4/180	P40844
				PNA	NA	02/10/98 04:30P	02/14/98 11:21P	NA	5/14	4/40	P40892
				Volatiles	NA	NA	02/19/98 05:14P	NA	NA	14/14	P41047
26682*5	S31B2 7.5'-8.5'	02/05/98 09:10A	02/06/98	Barium-ICP	NA	NA	02/16/98 06:56P	NA	NA	11/180	P40900
				Cadmium-ICP	NA	NA	02/16/98 06:56P	NA	NA	11/180	P40900
				Chromium-ICP	NA	NA	02/17/98 06:04P	NA	NA	12/180	P40917
				Lead-GFAA	NA	NA	02/17/98 03:29P	NA	NA	12/180	P40912
				Silver-ICP	NA	NA	02/16/98 06:56P	NA	NA	11/180	P40900
				Arsenic-GFAA	NA	NA	02/18/98 03:33P	NA	NA	13/180	P40940
				Selenium-GFAA	NA	NA	02/12/98 04:30P	NA	NA	7/180	P40936
				Mercury	NA	NA	02/11/98 03:44P	NA	NA	6/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	4/180	P40844
				PNA	NA	02/10/98 04:30P	02/15/98 12:18A	NA	5/14	4/40	P40892

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

SAMPLE	STATION ID	COLLECT. TIME	RECEIPT	CLASSIFICATION	LEACHATE	EXTRACTION	DAYS, ACT/HT ANALYSIS	LCH	EXT	ANL	BATCH
26682*6	S31B3 1.5'-2.5'	02/05/98 09:25A	02/06/98	Volatiles	NA	NA	02/19/98 05:44P	NA	NA	14/14	P41047
				Barium-ICP	NA	NA	02/16/98 06:59P	NA	NA	11/180	P40900
				Cadmium-ICP	NA	NA	02/16/98 06:59P	NA	NA	11/180	P40900
				Chromium-ICP	NA	NA	02/17/98 06:08P	NA	NA	12/180	P40917
				Lead-GFAA	NA	NA	02/17/98 03:41P	NA	NA	12/180	P40912
				Silver-ICP	NA	NA	02/16/98 06:59P	NA	NA	11/180	P40900
				Arsenic-GFAA	NA	NA	02/18/98 03:45P	NA	NA	13/180	P40940
				Selenium-GFAA	NA	NA	02/12/98 04:42P	NA	NA	7/180	P40936
				Mercury	NA	NA	02/11/98 03:46P	NA	NA	6/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	4/180	P40844
				PNA	NA	02/10/98 04:30P	02/15/98 01:14A	NA	5/14	4/40	P40892
26682*7	S31B3 6.5'-8.5'	02/05/98 09:45A	02/06/98	Volatiles	NA	NA	02/19/98 06:14P	NA	NA	14/14	P41047
				Barium-ICP	NA	NA	02/16/98 07:03P	NA	NA	11/180	P40900
				Cadmium-ICP	NA	NA	02/16/98 07:03P	NA	NA	11/180	P40900
				Chromium-ICP	NA	NA	02/17/98 06:11P	NA	NA	12/180	P40917
				Lead-GFAA	NA	NA	02/17/98 03:52P	NA	NA	12/180	P40912
				Silver-ICP	NA	NA	02/16/98 07:03P	NA	NA	11/180	P40900
				Arsenic-GFAA	NA	NA	02/18/98 04:09P	NA	NA	13/180	P40940
				Selenium-GFAA	NA	NA	02/12/98 04:53P	NA	NA	7/180	P40936
				Mercury	NA	NA	02/11/98 03:48P	NA	NA	6/28	P40873
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	4/180	P40844
				PNA	NA	02/10/98 04:30P	02/15/98 02:11A	NA	5/14	4/40	P40892
26682*8	S17B5 5.5'-7'	02/05/98 01:40P	02/06/98	Volatiles	NA	NA	02/19/98 06:44P	NA	NA	14/14	P41047
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	4/180	P40844
				Volatiles	NA	NA	02/19/98 07:13P	NA	NA	14/14	P41047
				GC VOLATILES	NA	NA	02/09/98 12:47P	NA	NA	3/14	P40839
				GROOA-1/5030	NA	NA	02/07/98 06:51P	NA	NA	2/14	P40823
				VOLATILES (GC)	NA	NA	02/09/98 12:47P	NA	NA	3/14	P40839
				TOTAL EXTRACTABLE HYDROCA	NA	02/09/98 10:00A	02/13/98 05:15P	NA	3/14	4/40	P40879
26682*9	S17B6 9.5'-11'	02/05/98 01:40P	02/06/98	Volatiles	NA	NA	02/19/98 07:13P	NA	NA	14/14	P41047
				MoistureMETHOD	NA	NA	02/09/98 02:45P	NA	NA	4/180	P40844
				Volatiles	NA	NA	02/19/98 07:43P	NA	NA	14/14	P41047
				GC VOLATILES	NA	NA	02/09/98 01:36P	NA	NA	3/14	P40839
				GROOA-1/5030	NA	NA	02/07/98 07:16P	NA	NA	2/14	P40823
				VOLATILES (GC)	NA	NA	02/09/98 01:36P	NA	NA	3/14	P40839
				TOTAL EXTRACTABLE HYDROCA	NA	02/09/98 10:00A	02/13/98 06:02P	NA	3/14	4/40	P40879
26682*10	S17MW1	02/05/98 12:00A	02/06/98	Volatiles	NA	NA	02/19/98 07:43P	NA	NA	14/14	P41047
				Barium,dissolved-ICP	NA	NA	02/12/98 06:42P	NA	NA	7/180	P40886
				Cadmium,dissolved-ICP	NA	NA	02/12/98 06:42P	NA	NA	7/180	P40886
				Chromium,dissolved-ICP	NA	NA	02/12/98 06:42P	NA	NA	7/180	P40886
				Silver,dissolved-ICP	NA	NA	02/12/98 06:42P	NA	NA	7/180	P40886
				Arsenic,dissolved-GFAA	NA	NA	02/10/98 04:17P	NA	NA	5/180	P40860
				Mercury,dissolved	NA	NA	02/11/98 06:55P	NA	NA	6/28	P40871
				Selenium,dissolved-GFAA	NA	NA	02/09/98 08:46P	NA	NA	4/180	P40849
				Lead,dissolved-GFAA	NA	NA	02/12/98 05:38P	NA	NA	7/180	P40905
				Barium,total-ICP	NA	NA	02/12/98 06:15P	NA	NA	7/180	P40885
				Cadmium,total-ICP	NA	NA	02/12/98 06:15P	NA	NA	7/180	P40885
				Chromium,total-ICP	NA	NA	02/12/98 06:15P	NA	NA	7/180	P40885
				Lead,total-GFAA	NA	NA	02/12/98 04:46P	NA	NA	7/180	P40904
				Silver,total-ICP	NA	NA	02/12/98 06:15P	NA	NA	7/180	P40885
				Arsenic,total-GFAA	NA	NA	02/13/98 07:57P	NA	NA	8/180	P40903

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

SAMPLE	STATION ID	COLLECT. TIME	RECEIPT	CLASSIFICATION	LEACHATE	EXTRACTION	DAYS, ACT/HT ANALYSIS	LCH	EXT	ANL	BATCH
				Selenium,total-GFAA	NA	NA	02/16/98 08:31P	NA	NA	11/180	P40927
				Mercury,total	NA	NA	02/11/98 06:55P	NA	NA	6/28	P40871
				Volatiles	NA	NA	02/17/98 07:26P	NA	NA	12/14	P41038

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

SAMPLE	SITE ID	ANALYTE	DIL	BATCH
26682*2	S31B1 6.2'-7'	Lead	5	P40912
26682*3	S31B1 8'-8.5'	Lead	5	P40912
26682*4	S31B2 5.2'-6'	Lead	5	P40912
26682*5	S31B2 7.5'-8.5'	Lead	5	P40912
26682*6	S31B3 1.5'-2.5'	Lead	5	P40912
26682*7	S31B3 6.5'-8.5'	Lead	5	P40912
26682*8	S17B5 5.5'-7'	Gasoline Range Organ	1250	P40823
		Benzene	125	P40839
		Toluene	125	
		Xylenes, Total	125	
		Ethylbenzene	125	
		m-and/or p-Xylene	125	
		o-Xylene	125	
		TOTAL EXTRACTABLE HY	20	P40879
26682*9	S17B6 9.5'-11'	Gasoline Range Organ	1250	P40823
		Benzene	125	P40839
		Toluene	125	
		Xylenes, Total	125	
		Ethylbenzene	125	
		m-and/or p-Xylene	125	
		o-Xylene	125	
		TOTAL EXTRACTABLE HY	20	P40879
26682*10 DL	S17MW1	Volatiles	5000	P41038

QUALITY CONTROL SUMMARY REPORTS BY ANALYTICAL BATCH

KATALYST BATCH : P40886
ANALYSIS : SW6010

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : ICP UPLOAD

REPORT DATE/TIME : 03/09/98 11:27
ANALYSIS DATE/TIME : 02/12/98
EXTRACT DATE : 02/11/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*10	S17MW1	02/12/98	06:42PM
DA*26682*1	S21MW1	02/12/98	07:10PM

KATALYST BATCH : P40886

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/12/98	CCB*980212*1	1005*6010/3005	Barium,dissolved	UG/L	1.9
02/12/98	CCB*980212*1	1025*6010/3005	Cadmium,dissolved	UG/L	1.8
02/12/98	CCB*980212*1	1030*6010/3005	Chromium,dissolved	UG/L	9.7
02/12/98	CCB*980212*1	1075*6010/3005	Silver,dissolved	UG/L	6.4
02/12/98	CCB*980212*2	1005*6010/3005	Barium,dissolved	UG/L	ND
02/12/98	CCB*980212*2	1025*6010/3005	Cadmium,dissolved	UG/L	1.1
02/12/98	CCB*980212*2	1030*6010/3005	Chromium,dissolved	UG/L	0.8
02/12/98	CCB*980212*2	1075*6010/3005	Silver,dissolved	UG/L	ND
02/12/98	CCB*980212*3	1005*6010/3005	Barium,dissolved	UG/L	ND
02/12/98	CCB*980212*3	1025*6010/3005	Cadmium,dissolved	UG/L	3.9
02/12/98	CCB*980212*3	1030*6010/3005	Chromium,dissolved	UG/L	ND
02/12/98	CCB*980212*3	1075*6010/3005	Silver,dissolved	UG/L	0.5
02/12/98	CCB*980212*4	1005*6010/3005	Barium,dissolved	UG/L	ND
02/12/98	CCB*980212*4	1025*6010/3005	Cadmium,dissolved	UG/L	0.1
02/12/98	CCB*980212*4	1030*6010/3005	Chromium,dissolved	UG/L	1.8
02/12/98	CCB*980212*4	1075*6010/3005	Silver,dissolved	UG/L	0.6

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	CCV*980212*1	1005*6010/3005	Barium,dissolved	UG/L	4000	3890	97.3	90-110
02/12/98	CCV*980212*1	1025*6010/3005	Cadmium,dissolved	UG/L	4000	3910	97.8	90-110
02/12/98	CCV*980212*1	1030*6010/3005	Chromium,dissolved	UG/L	4000	3810	95.3	90-110
02/12/98	CCV*980212*1	1075*6010/3005	Silver,dissolved	UG/L	400	375	93.8	90-110
02/12/98	CCV*980212*2	1005*6010/3005	Barium,dissolved	UG/L	4000	3840	96.0	90-110
02/12/98	CCV*980212*2	1025*6010/3005	Cadmium,dissolved	UG/L	4000	3870	96.8	90-110
02/12/98	CCV*980212*2	1030*6010/3005	Chromium,dissolved	UG/L	4000	3780	94.5	90-110
02/12/98	CCV*980212*2	1075*6010/3005	Silver,dissolved	UG/L	400	372	93.0	90-110
02/12/98	CCV*980212*3	1005*6010/3005	Barium,dissolved	UG/L	4000	3860	96.5	90-110
02/12/98	CCV*980212*3	1025*6010/3005	Cadmium,dissolved	UG/L	4000	3890	97.3	90-110
02/12/98	CCV*980212*3	1030*6010/3005	Chromium,dissolved	UG/L	4000	3780	94.5	90-110
02/12/98	CCV*980212*3	1075*6010/3005	Silver,dissolved	UG/L	400	372	93.0	90-110
02/12/98	CCV*980212*4	1005*6010/3005	Barium,dissolved	UG/L	4000	3880	97.0	90-110
02/12/98	CCV*980212*4	1025*6010/3005	Cadmium,dissolved	UG/L	4000	3890	97.3	90-110
02/12/98	CCV*980212*4	1030*6010/3005	Chromium,dissolved	UG/L	4000	3800	95.0	90-110
02/12/98	CCV*980212*4	1075*6010/3005	Silver,dissolved	UG/L	400	372	93.0	90-110

Interference Check Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	ICS*AB*1	1005*6010/3005	Barium,dissolved	UG/L	500	467	93.4	80-120
02/12/98	ICS*AB*1	1025*6010/3005	Cadmium,dissolved	UG/L	1000	871	87.1	80-120
02/12/98	ICS*AB*1	1030*6010/3005	Chromium,dissolved	UG/L	500	456	91.2	80-120
02/12/98	ICS*AB*1	1075*6010/3005	Silver,dissolved	UG/L	1000	928	92.8	80-120
02/12/98	ICS*AB*2	1005*6010/3005	Barium,dissolved	UG/L	500	457	91.4	80-120
02/12/98	ICS*AB*2	1025*6010/3005	Cadmium,dissolved	UG/L	1000	868	86.8	80-120
02/12/98	ICS*AB*2	1030*6010/3005	Chromium,dissolved	UG/L	500	448	89.6	80-120
02/12/98	ICS*AB*2	1075*6010/3005	Silver,dissolved	UG/L	1000	909	90.9	80-120

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	ICV*980212*1	1005*6010/3005	Barium,dissolved	UG/L	6000	6040	101	90-110
02/12/98	ICV*980212*1	1025*6010/3005	Cadmium,dissolved	UG/L	6000	5970	99.5	90-110
02/12/98	ICV*980212*1	1030*6010/3005	Chromium,dissolved	UG/L	6000	5840	97.3	90-110
02/12/98	ICV*980212*1	1075*6010/3005	Silver,dissolved	UG/L	600	574	95.7	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	LCS*98MP27071*1	1005*6010/3005	Barium,dissolved	UG/L	5000	4740	94.8	80-120
02/12/98	LCS*98MP27071*1	1025*6010/3005	Cadmium,dissolved	UG/L	5000	4730	94.6	80-120
02/12/98	LCS*98MP27071*1	1030*6010/3005	Chromium,dissolved	UG/L	5000	4630	92.6	80-120
02/12/98	LCS*98MP27071*1	1075*6010/3005	Silver,dissolved	UG/L	500	452	90.4	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/12/98	MB*98MP27071*1	1005*6010/3005	Barium,dissolved	UG/L	0.5	10.0
02/12/98	MB*98MP27071*1	1025*6010/3005	Cadmium,dissolved	UG/L	2.1	5.0
02/12/98	MB*98MP27071*1	1030*6010/3005	Chromium,dissolved	UG/L	2.2	10.0
02/12/98	MB*98MP27071*1	1075*6010/3005	Silver,dissolved	UG/L	2.8	10.0

KATALYST BATCH : P40886

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/12/98	RP*26682*10	1005*6010/3005	Barium,dissolved	UG/L	437	429	1.8		20
02/12/98	RP*26682*10	1025*6010/3005	Cadmium,dissolved	UG/L	<5.0	<5.0			20
02/12/98	RP*26682*10	1030*6010/3005	Chromium,dissolved	UG/L	<10.0	<10.0			20
02/12/98	RP*26682*10	1075*6010/3005	Silver,dissolved	UG/L	<10.0	<10.0			20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/12/98	SPM1*26682*10	1005	Barium,dissolved	UG/L	437	5000	4560	91.2	75-125		
02/12/98	SPM1*26682*10	1025	Cadmium,dissolved	UG/L	2.5	5000	4430	88.6	75-125		
02/12/98	SPM1*26682*10	1030	Chromium,dissolved	UG/L	10.0	5000	4350	87.0	75-125		
02/12/98	SPM1*26682*10	1075	Silver,dissolved	UG/L	3.7	500	444	88.8	54-125		
02/12/98	SPM2*26682*10	1005	Barium,dissolved	UG/L	437	5000	4670	93.4	75-125	2.4	20
02/12/98	SPM2*26682*10	1025	Cadmium,dissolved	UG/L	2.5	5000	4470	89.4	75-125	0.9	20
02/12/98	SPM2*26682*10	1030	Chromium,dissolved	UG/L	10.0	5000	4420	88.4	75-125	1.6	20
02/12/98	SPM2*26682*10	1075	Silver,dissolved	UG/L	3.7	500	441	88.2	54-125	0.7	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	SPX*26682*10	1005*6010/3005	Barium,dissolved	UG/L	5000	4780	95.6	75-125
02/12/98	SPX*26682*10	1025*6010/3005	Cadmium,dissolved	UG/L	5000	4660	93.2	75-125
02/12/98	SPX*26682*10	1030*6010/3005	Chromium,dissolved	UG/L	5000	4610	92.2	75-125
02/12/98	SPX*26682*10	1075*6010/3005	Silver,dissolved	UG/L	500	448	89.6	75-125

KATALYST BATCH : P40886

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40886 Analysis Date: 02/12/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No
re ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
CB present?	X	
CB within acceptance criteria?	X	
CCV present?	X	
CV within acceptance criteria?	X	
ICS present?	X	
ICS within acceptance criteria?	X	
CV present?	X	
CV within acceptance criteria?	X	
LCS present?	X	
CS within acceptance criteria?	X	
Method blank present?	X	
Method blank within acceptance criteria?	X	
ample replicate present?	X	
ample replicate within acceptance criteria?	X	
Sample matrix spike present?	X	
ample matrix spike within acceptance criteria?	X	
Sample matrix spike duplicate present?	X	
Sample matrix spike duplicate within acceptance criteria?	X	
nalytical spike present?	X	
nalytical spike within acceptance criteria?	X	

BATCH OVERRIDE BY:

INALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40860
ANALYSIS : SW7060

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 11:28
ANALYSIS DATE/TIME : 02/10/98
EXTRACT DATE : 02/09/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*10	S17MW1	02/10/98	04:17PM
DA*26682*1	S21MW1	02/10/98	04:56PM

KATALYST BATCH : P40860

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/10/98	CCB*980210AS*1	1000*7060	Arsenic,dissolved	UG/L	ND
02/10/98	CCB*980210AS*2	1000*7060	Arsenic,dissolved	UG/L	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/10/98	CCV*980210AS*1	1000*7060	Arsenic,dissolved	UG/L	20.0	20.5	103	90-110
02/10/98	CCV*980210AS*2	1000*7060	Arsenic,dissolved	UG/L	20.0	20.5	103	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/10/98	ICV*980210AS*1	1000*7060	Arsenic,dissolved	UG/L	30.0	29.8	99.3	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/10/98	LCS*98MP27063*1	1000*7060	Arsenic,dissolved	UG/L	20.0	19.0	95.0	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/10/98	MB*98MP27063*1	1000*7060	Arsenic,dissolved	UG/L	ND	50.0

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/10/98	RP*26682*10	1000*7060	Arsenic,dissolved	UG/L	<50.0	<50.0			20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/10/98	SPM1*26682*10	1000	Arsenic,dissolved	UG/L	4.5	20.0	23.9	119.5	75-125		
02/10/98	SPM2*26682*10	1000	Arsenic,dissolved	UG/L	4.5	20.0	23.6	118.0	75-125	1.6	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/10/98	SPX*26682*10	1000*7060	Arsenic,dissolved	UG/L	20.0	21.0	105.0	85-115
02/10/98	SPX*26682*1	1000*7060	Arsenic,dissolved	UG/L	20.0	21.3	106.5	85-115

KATALYST BATCH : P40860

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40860 Analysis Date: 02/10/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No
Are ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
CCB present?	X	
CCB within acceptance criteria?	X	
CCV present?	X	
CCV within acceptance criteria?	X	
ICV present?	X	
ICV within acceptance criteria?	X	
LCS present?	X	
LCS within acceptance criteria?	X	
Method blank present?	X	
Method blank within acceptance criteria?	X	
Sample replicate present?	X	
Sample replicate within acceptance criteria?	X	
Sample matrix spike present?	X	
Sample matrix spike within acceptance criteria?	X	
Sample matrix spike duplicate present?	X	
Sample matrix spike duplicate within acceptance criteria?	X	
Analytical spike present?	X	
Analytical spike within acceptance criteria?	X	

BATCH OVERRIDE BY:

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40871
ANALYSIS : SW7470

QC TYPE : FDER/SW
ANALYST : TODD PETERSON
EXTRACTOR : TOM FERRELL
DATA ENTRY : TODD PETERSON

REPORT DATE/TIME : 03/09/98 11:28
ANALYSIS DATE/TIME : 02/11/98
EXTRACT DATE : 02/11/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*1	S21MW1	02/11/98	06:48PM
DA*26682*10	S17MW1	02/11/98	06:55PM
DA*26682*10*C	S17MW1	02/11/98	07:22PM

KATALYST BATCH : P40871

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/11/98	CCB*980211W*1	71890*7470	Mercury,dissolved	UG/L	0.05
02/11/98	CCB*980211W*1	71900*7470	Mercury,total	UG/L	0.05
02/11/98	CCB*980211W*2	71890*7470	Mercury,dissolved	UG/L	ND
02/11/98	CCB*980211W*2	71900*7470	Mercury,total	UG/L	ND
02/11/98	CCB*980211W*3	71890*7470	Mercury,dissolved	UG/L	ND
02/11/98	CCB*980211W*3	71900*7470	Mercury,total	UG/L	ND
02/11/98	CCB*980212*1	71890*7470	Mercury,dissolved	UG/L	NA
02/11/98	CCB*980212*1	71900*7470	Mercury,total	UG/L	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/11/98	CCV*980211W*1	71890*7470	Mercury,dissolved	UG/L	5.00	5.23	105	90-110
02/11/98	CCV*980211W*1	71900*7470	Mercury,total	UG/L	5.00	5.23	105	90-110
02/11/98	CCV*980211W*2	71890*7470	Mercury,dissolved	UG/L	5.00	5.22	104	90-110
02/11/98	CCV*980211W*2	71900*7470	Mercury,total	UG/L	5.00	5.22	104	90-110
02/11/98	CCV*980211W*3	71890*7470	Mercury,dissolved	UG/L	5.00	5.15	103	90-110
02/11/98	CCV*980211W*3	71900*7470	Mercury,total	UG/L	5.00	5.15	103	90-110
02/11/98	CCV*980212*1	71900*7470	Mercury,total	UG/L	5.00	4.82	96.4	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/11/98	ICV*980211W*1	71890*7470	Mercury,dissolved	UG/L	2.50	2.73	109	90-110
02/11/98	ICV*980211W*1	71900*7470	Mercury,total	UG/L	2.50	2.73	109	90-110
02/11/98	ICV*980212*1	71900*7470	Mercury,total	UG/L	2.50	2.67	107	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/11/98	LCS*MP27073*1	71890*7470	Mercury,dissolved	UG/L	1.00	1.14	114.0	80-120
02/11/98	LCS*MP27073*1	71900*7470	Mercury,total	UG/L	1.00	1.14	114.0	80-120
02/11/98	LCS*MP27073*2	71890*7470	Mercury,dissolved	UG/L	1.00	1.14	114.0	80-120
02/11/98	LCS*MP27073*2	71900*7470	Mercury,total	UG/L	1.00	1.14	114.0	80-120
02/11/98	LCS*MP27075*1	71900*7470	Mercury,total	UG/L	1.00	1.08	108.0	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/11/98	MB*MP27073*1	71890*7470	Mercury,dissolved	UG/L	0.04	0.20
02/11/98	MB*MP27073*1	71900*7470	Mercury,total	UG/L	0.04	0.20
02/11/98	MB*MP27075*1	71890*7470	Mercury,dissolved	UG/L	NA	0.20
02/11/98	MB*MP27075*1	71900*7470	Mercury,total	UG/L	ND	0.20

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/11/98	RP*26682*10	71900*7470	Mercury,total	UG/L	<0.20	<0.20			20

KATALYST BATCH : P40871

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40871 Analysis Date: 02/11/98 Analyst: TODD PETERSON Report Date: 03/09/98

	Yes	No		
e ALL units documented in batch?	X			
Analysis holding time within criteria?	X			
CB present?	X			
CB within acceptance criteria?	X			
CCV present?	X			
CV within acceptance criteria?	X			
ICV present?	X			
ICV within acceptance criteria?	X			
CS present?	X			
CS within acceptance criteria?	X			
Method blank present?	X			
ethod blank within acceptance criteria?	X			
Sample replicate present?	X			
Sample replicate within acceptance criteria?		X	71890*7470	** Fewer than 1 replicates.
ample matrix spike present?		X		
ample matrix spike within acceptance criteria?				

BATCH OVERRIDE BY: MIKE TRAVIS 1003

INALIZED BY: BATCH FINALIZE 15

Batch Narrative - P40871 Analysis: SW7470

PROBLEM:
Sample replicate not within acceptance criteria:
Hg ** Fewer than 1 replicates.
EXPLANATION: For Dissolved Hg analysis, no sample available to perform Sample Replicate, and both Dissolved/Total: no sample available for Matrix Spike and Matrix Spike Duplicate analysis. An LCS and LCS Duplicate were digested and analyzed.
PROBLEM:
Sample matrix spike not present:
EXPLANATION: See above.

KATALYST BATCH : P40849
ANALYSIS : SW7740

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 11:28
ANALYSIS DATE/TIME : 02/09/98
EXTRACT DATE : 02/09/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*10	S17MW1	02/09/98	08:46PM
DA*26682*1	S21MW1	02/09/98	09:29PM

KATALYST BATCH : P40849

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/09/98	CCB*980209SE*1	1145*7740	Selenium,dissolved	UG/L	1.3
02/09/98	CCB*980209SE*2	1145*7740	Selenium,dissolved	UG/L	1.2
02/09/98	CCB*980209SE*3	1145*7740	Selenium,dissolved	UG/L	2.0
02/09/98	CCB*980209SE*4	1145*7740	Selenium,dissolved	UG/L	1.9

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	CCV*980209SE*1	1145*7740	Selenium,dissolved	UG/L	20.0	21.3	107	90-110
02/09/98	CCV*980209SE*2	1145*7740	Selenium,dissolved	UG/L	20.0	21.9	110	90-110
02/09/98	CCV*980209SE*3	1145*7740	Selenium,dissolved	UG/L	20.0	21.2	106	90-110
02/09/98	CCV*980209SE*4	1145*7740	Selenium,dissolved	UG/L	20.0	21.8	109	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	ICV*980209SE*1	1145*7740	Selenium,dissolved	UG/L	30.0	31.4	105	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	LCS*98MP27063*1	1145*7740	Selenium,dissolved	UG/L	20.0	22.8	114.0	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/09/98	MB*98MP27063*1	1145*7740	Selenium,dissolved	UG/L	2.1	5.0

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/09/98	RP*26682*10	1145*7740	Selenium,dissolved	UG/L	10.9	10.8	0.9		20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/09/98	SPM1*26682*10	1145	Selenium,dissolved	UG/L	10.9	20.0	17.1	85.5	75-125		
02/09/98	SPM2*26682*10	1145	Selenium,dissolved	UG/L	10.9	20.0	16.3	81.5	75-125	4.8	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	SPX*26682*10	1145*7740	Selenium,dissolved	UG/L	20.0	17.2	86.0	85-115
02/09/98	SPX*26682*1	1145*7740	Selenium,dissolved	UG/L	20.0	21.4	107.0	85-115

KATALYST BATCH : P40849

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40849 Analysis Date: 02/09/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No
Are ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
CCB present?	X	
CCB within acceptance criteria?	X	
CCV present?	X	
CCV within acceptance criteria?	X	
ICV present?	X	
ICV within acceptance criteria?	X	
LCS present?	X	
LCS within acceptance criteria?	X	
Method blank present?	X	
Method blank within acceptance criteria?	X	
Sample replicate present?	X	
Sample replicate within acceptance criteria?	X	
Sample matrix spike present?	X	
Sample matrix spike within acceptance criteria?	X	
Sample matrix spike duplicate present?	X	
Sample matrix spike duplicate within acceptance criteria?	X	
Analytical spike present?	X	
Analytical spike within acceptance criteria?	X	

BATCH OVERRIDE BY:

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40905
NALYSIS : SW7421

C TYPE : FDER/SW
ANALYST : JON BUERCK
XTRACTOR : TOM PERRELL
ATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 11:28
ANALYSIS DATE/TIME : 02/12/98
EXTRACT DATE : 02/11/98

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

AMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*1	S21MW1	02/12/98	05:27PM
A*26682*10	S17MW1	02/12/98	05:38PM

KATALYST BATCH : P40905

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/12/98	CCB*980212PB*1	1049*7421/3020	Lead,dissolved	UG/L	ND
02/12/98	CCB*980212PB*2	1049*7421/3020	Lead,dissolved	UG/L	0.8

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	CCV*980212PB*1	1049*7421/3020	Lead,dissolved	UG/L	20.0	20.2	101	90-110
02/12/98	CCV*980212PB*2	1049*7421/3020	Lead,dissolved	UG/L	20.0	21.1	106	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	ICV*980212PB*1	1049*7421/3020	Lead,dissolved	UG/L	30.0	31.5	105	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	LCS*98MP27070*1	1049*7421/3020	Lead,dissolved	UG/L	20.0	20.4	102.0	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/12/98	MB*98MP27070*1	1049*7421/3020	Lead,dissolved	UG/L	0.08	3.0

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/12/98	RP*26682*10	1049*7421/3020	Lead,dissolved	UG/L	<3.0	<3.0			20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/12/98	SPM1*26682*10	1049	Lead,dissolved	UG/L	1.4	20.0	19.1	95.5	75-125		
02/12/98	SPM2*26682*10	1049	Lead,dissolved	UG/L	1.4	20.0	19.6	98.0	75-125	2.8	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	SPX*26682*1	1049*7421/3020	Lead,dissolved	UG/L	20.0	18.9	94.5	85-115
02/12/98	SPX*26682*10	1049*7421/3020	Lead,dissolved	UG/L	20.0	20.1	100.5	85-115

KATALYST BATCH : P40905

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40905 Analysis Date: 02/12/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No
re ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
CB present?	X	
CB within acceptance criteria?	X	
CCV present?	X	
CV within acceptance criteria?	X	
ICV present?	X	
ICV within acceptance criteria?	X	
CS present?	X	
CS within acceptance criteria?	X	
Method blank present?	X	
ethod blank within acceptance criteria?	X	
Sample replicate present?	X	
Sample replicate within acceptance criteria?	X	
ample matrix spike present?	X	
ample matrix spike within acceptance criteria?	X	
Sample matrix spike duplicate present?	X	
ample matrix spike duplicate within acceptance criteria?	X	
Analytical spike present?	X	
Analytical spike within acceptance criteria?	X	

ATCH OVERRIDE BY:

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40900
ANALYSIS : SW6010

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : ICP UPLOAD

REPORT DATE/TIME : 03/09/98 11:28
ANALYSIS DATE/TIME : 02/16/98
EXTRACT DATE : 02/13/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*2	S31B1 6.2'-7'	02/16/98	06:21PM
DA*26682*3	S31B1 8'-8.5'	02/16/98	06:49PM
DA*26682*4	S31B2 5.2'-6'	02/16/98	06:53PM
DA*26682*5	S31B2 7.5'-8.5'	02/16/98	06:56PM
DA*26682*6	S31B3 1.5'-2.5'	02/16/98	06:59PM
DA*26682*7	S31B3 6.5'-8.5'	02/16/98	07:03PM

KATALYST BATCH : P40900

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
[redacted]/16/98	CCB*980216*1	1043*6010/3050	Copper	MG/KG-	0.002
[redacted]/16/98	CCB*980216*1	1052*6010/3050	Lead	MG/KG-	0.003
02/16/98	CCB*980216*1	1008*6010/3050	Barium	MG/KG-	0.002
02/16/98	CCB*980216*1	1028*6010/3050	Cadmium	MG/KG-	ND
[redacted]/16/98	CCB*980216*1	1078*6010/3050	Silver	MG/KG-	ND
[redacted]/16/98	CCB*980216*2	1043*6010/3050	Copper	MG/KG-	0.006
[redacted]/16/98	CCB*980216*2	1052*6010/3050	Lead	MG/KG-	0.008
02/16/98	CCB*980216*2	1008*6010/3050	Barium	MG/KG-	0.003
[redacted]/16/98	CCB*980216*2	1028*6010/3050	Cadmium	MG/KG-	ND
[redacted]/16/98	CCB*980216*2	1078*6010/3050	Silver	MG/KG-	0.0007
[redacted]/16/98	CCB*980216*3	1043*6010/3050	Copper	MG/KG-	0.001
02/16/98	CCB*980216*3	1052*6010/3050	Lead	MG/KG-	ND
02/16/98	CCB*980216*3	1008*6010/3050	Barium	MG/KG-	0.003
[redacted]/16/98	CCB*980216*3	1028*6010/3050	Cadmium	MG/KG-	ND
[redacted]/16/98	CCB*980216*3	1078*6010/3050	Silver	MG/KG-	ND
[redacted]/16/98	CCB*980216*5	1043*6010/3050	Copper	MG/KG-	0.001
02/16/98	CCB*980216*5	1052*6010/3050	Lead	MG/KG-	0.003
[redacted]/16/98	CCB*980216*5	1008*6010/3050	Barium	MG/KG-	0.003
[redacted]/16/98	CCB*980216*5	1028*6010/3050	Cadmium	MG/KG-	ND
[redacted]/16/98	CCB*980216*5	1078*6010/3050	Silver	MG/KG-	0.0002
02/16/98	CCB*980216*6	1043*6010/3050	Copper	MG/KG-	0.008
02/16/98	CCB*980216*6	1052*6010/3050	Lead	MG/KG-	0.001
[redacted]/16/98	CCB*980216*6	1008*6010/3050	Barium	MG/KG-	0.003
[redacted]/16/98	CCB*980216*6	1028*6010/3050	Cadmium	MG/KG-	ND
[redacted]/16/98	CCB*980216*6	1078*6010/3050	Silver	MG/KG-	0.003

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	CCV*980216*1	1043*6010/3050	Copper	MG/KG-	4.00	3.92	98.0	90-110
02/16/98	CCV*980216*1	1052*6010/3050	Lead	MG/KG-	4.00	3.83	95.8	90-110
[redacted]/16/98	CCV*980216*1	1008*6010/3050	Barium	MG/KG-	4.00	3.91	97.8	90-110
[redacted]/16/98	CCV*980216*1	1028*6010/3050	Cadmium	MG/KG-	4.00	3.89	97.3	90-110
[redacted]/16/98	CCV*980216*1	1078*6010/3050	Silver	MG/KG-	0.400	0.370	92.5	90-110
02/16/98	CCV*980216*2	1043*6010/3050	Copper	MG/KG-	4.00	3.93	98.3	90-110
[redacted]/16/98	CCV*980216*2	1052*6010/3050	Lead	MG/KG-	4.00	3.84	96.0	90-110
[redacted]/16/98	CCV*980216*2	1008*6010/3050	Barium	MG/KG-	4.00	3.93	98.3	90-110
[redacted]/16/98	CCV*980216*2	1028*6010/3050	Cadmium	MG/KG-	4.00	3.93	98.3	90-110
02/16/98	CCV*980216*2	1078*6010/3050	Silver	MG/KG-	0.400	0.366	91.5	90-110
02/16/98	CCV*980216*3	1043*6010/3050	Copper	MG/KG-	4.00	3.97	99.3	90-110
[redacted]/16/98	CCV*980216*3	1052*6010/3050	Lead	MG/KG-	4.00	3.89	97.3	90-110
[redacted]/16/98	CCV*980216*3	1008*6010/3050	Barium	MG/KG-	4.00	3.97	99.3	90-110
[redacted]/16/98	CCV*980216*3	1028*6010/3050	Cadmium	MG/KG-	4.00	3.99	99.8	90-110
02/16/98	CCV*980216*3	1078*6010/3050	Silver	MG/KG-	0.400	0.370	92.5	90-110
02/16/98	CCV*980216*4	1043*6010/3050	Copper	MG/KG-	4.00	3.92	98.0	90-110
[redacted]/16/98	CCV*980216*4	1052*6010/3050	Lead	MG/KG-	4.00	3.85	96.3	90-110
[redacted]/16/98	CCV*980216*4	1008*6010/3050	Barium	MG/KG-	4.00	3.90	97.5	90-110
02/16/98	CCV*980216*4	1028*6010/3050	Cadmium	MG/KG-	4.00	3.91	97.8	90-110
02/16/98	CCV*980216*4	1078*6010/3050	Silver	MG/KG-	0.400	0.367	91.8	90-110
[redacted]/16/98	CCV*980216*6	1043*6010/3050	Copper	MG/KG-	4.00	3.91	97.8	90-110
[redacted]/16/98	CCV*980216*6	1052*6010/3050	Lead	MG/KG-	4.00	3.86	96.5	90-110
[redacted]/16/98	CCV*980216*6	1008*6010/3050	Barium	MG/KG-	4.00	3.89	97.3	90-110
02/16/98	CCV*980216*6	1028*6010/3050	Cadmium	MG/KG-	4.00	3.93	98.3	90-110
[redacted]/16/98	CCV*980216*6	1078*6010/3050	Silver	MG/KG-	0.400	0.365	91.3	90-110
[redacted]/16/98	CCV*980216*7	1043*6010/3050	Copper	MG/KG-	4.00	3.96	99.0	90-110
[redacted]/16/98	CCV*980216*7	1052*6010/3050	Lead	MG/KG-	4.00	3.89	97.3	90-110
02/16/98	CCV*980216*7	1008*6010/3050	Barium	MG/KG-	4.00	3.95	98.8	90-110
02/16/98	CCV*980216*7	1028*6010/3050	Cadmium	MG/KG-	4.00	3.99	99.8	90-110
[redacted]/16/98	CCV*980216*7	1078*6010/3050	Silver	MG/KG-	0.400	0.373	93.3	90-110

Interference Check Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
[redacted]/16/98	ICS*AB*1	1043*6010/3050	Copper	MG/KG-	0.500	0.469	93.8	80-120
[redacted]/16/98	ICS*AB*1	1052*6010/3050	Lead	MG/KG-	1.00	0.908	90.8	80-120
02/16/98	ICS*AB*1	1008*6010/3050	Barium	MG/KG-	0.500	0.475	95.0	80-120
02/16/98	ICS*AB*1	1028*6010/3050	Cadmium	MG/KG-	1.00	0.877	87.7	80-120
[redacted]/16/98	ICS*AB*1	1078*6010/3050	Silver	MG/KG-	1.00	0.922	92.2	80-120
[redacted]/16/98	ICS*AB*2	1043*6010/3050	Copper	MG/KG-	0.500	0.466	93.2	80-120
[redacted]/16/98	ICS*AB*2	1052*6010/3050	Lead	MG/KG-	1.00	0.944	94.4	80-120
02/16/98	ICS*AB*2	1008*6010/3050	Barium	MG/KG-	0.500	0.473	94.6	80-120
02/16/98	ICS*AB*2	1028*6010/3050	Cadmium	MG/KG-	1.00	0.888	88.8	80-120
[redacted]/16/98	ICS*AB*2	1078*6010/3050	Silver	MG/KG-	1.00	0.920	92.0	80-120

KATALYST BATCH : P40900

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	ICV*980216*1	1043*6010/3050	Copper	MG/KG-	6.00	5.89	98.2	90-110
02/16/98	ICV*980216*1	1052*6010/3050	Lead	MG/KG-	6.00	5.74	95.7	90-110
02/16/98	ICV*980216*1	1008*6010/3050	Barium	MG/KG-	6.00	5.90	98.3	90-110
02/16/98	ICV*980216*1	1028*6010/3050	Cadmium	MG/KG-	6.00	5.83	97.2	90-110
02/16/98	ICV*980216*1	1078*6010/3050	Silver	MG/KG-	0.600	0.549	91.5	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	LCS*98MP27085*1	1043*6010/3050	Copper	MG/KG-	500	491	98.2	80-120
02/16/98	LCS*98MP27085*1	1052*6010/3050	Lead	MG/KG-	500	480	96.0	80-120
02/16/98	LCS*98MP27082*1	1008*6010/3050	Barium	MG/KG-	500	486	97.2	80-120
02/16/98	LCS*98MP27082*1	1028*6010/3050	Cadmium	MG/KG-	500	482	96.4	80-120
02/16/98	LCS*98MP27082*1	1078*6010/3050	Silver	MG/KG-	50.0	45.4	90.8	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/16/98	MB*98MP27085*1	1043*6010/3050	Copper	MG/KG-	0.758	1.00
02/16/98	MB*98MP27085*1	1052*6010/3050	Lead	MG/KG-	ND	5.00
02/16/98	MB*98MP27085*1	1008*6010/3050	Barium	MG/KG-	NA	1.00
02/16/98	MB*98MP27085*1	1028*6010/3050	Cadmium	MG/KG-	NA	0.500
02/16/98	MB*98MP27085*1	1078*6010/3050	Silver	MG/KG-	NA	1.00
02/16/98	MB*98MP27082*1	1043*6010/3050	Copper	MG/KG-	NA	1.00
02/16/98	MB*98MP27082*1	1052*6010/3050	Lead	MG/KG-	NA	5.00
02/16/98	MB*98MP27082*1	1008*6010/3050	Barium	MG/KG-	0.376	1.00
02/16/98	MB*98MP27082*1	1028*6010/3050	Cadmium	MG/KG-	ND	0.500
02/16/98	MB*98MP27082*1	1078*6010/3050	Silver	MG/KG-	ND	1.00

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/16/98	RP*26721*2	1043*6010/3050	Copper	MG/KG-	45.7	42.0	8.40		20
02/16/98	RP*26721*2	1052*6010/3050	Lead	MG/KG-	18.4	15.8	15.2		20
02/16/98	RP*26682*2	1008*6010/3050	Barium	MG/KG-	180	186	3.30		20
02/16/98	RP*26682*2	1028*6010/3050	Cadmium	MG/KG-	<0.637	<0.634			20
02/16/98	RP*26682*2	1078*6010/3050	Silver	MG/KG-	<1.27	<1.27			20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/16/98	SPM1*26721*2	1043	Copper	MG/KG-	45.7	535	512	95.7	75-125		
02/16/98	**SPM1*26721*2**	**1052**	**Lead**	**MG/KG-**	**18.4**	**535**	**897**	**167.7**	**75-125**		
02/16/98	SPM2*26721*2	1043	Copper	MG/KG-	45.7	535	513	95.9	75-125	0.200	20
02/16/98	**SPM2*26721*2**	**1052**	**Lead**	**MG/KG-**	**18.4**	**535**	**471**	**88.0**	**75-125**	**62.3**	**35**
02/16/98	SPM1*26682*2	1008	Barium	MG/KG-	180	636	774	121.7	75-125		
02/16/98	SPM1*26682*2	1028	Cadmium	MG/KG-	0.261	636	578	90.9	75-125		
02/16/98	SPM1*26682*2	1078	Silver	MG/KG-	0.0	63.6	56.5	88.8	54-125		
02/16/98	**SPM2*26682*2**	**1008**	**Barium**	**MG/KG-**	**180**	**627**	**880**	**140.4**	**75-125**	**14.2**	**20**
02/16/98	SPM2*26682*2	1028	Cadmium	MG/KG-	0.261	627	558	89.0	75-125	2.10	20
02/16/98	SPM2*26682*2	1078	Silver	MG/KG-	0.0	62.7	54.8	87.4	54-125	1.60	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	SPX*26721*2	1043*6010/3050	Copper	MG/KG-	535	514	96.1	75-125
02/16/98	SPX*26721*2	1052*6010/3050	Lead	MG/KG-	535	470	87.9	75-125
02/16/98	SPX*26682*2	1008*6010/3050	Barium	MG/KG-	637	601	94.3	75-125
02/16/98	SPX*26682*2	1028*6010/3050	Cadmium	MG/KG-	637	582	91.4	75-125
02/16/98	SPX*26682*2	1078*6010/3050	Silver	MG/KG-	63.7	56.6	88.9	75-125

KATALYST BATCH : P40900

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40900 Analysis Date: 02/16/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCB present?	X		
CCB within acceptance criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICS present?	X		
ICS within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	1052*6010/3050
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?		X	1052*6010/3050 1008*6010/3050
Analytical spike present?	X		
Analytical spike within acceptance criteria?	X		

BATCH OVERRIDE BY: TROY AVERY 1006

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40917
ANALYSIS : SW6010

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : ICP UPLOAD

REPORT DATE/TIME : 03/09/98 11:29
ANALYSIS DATE/TIME : 02/17/98
EXTRACT DATE : 02/17/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*2	S31B1 6.2'-7'	02/17/98	05:30PM
DA*26682*3	S31B1 8'-8.5'	02/17/98	05:57PM
DA*26682*4	S31B2 5.2'-6'	02/17/98	06:01PM
DA*26682*5	S31B2 7.5'-8.5'	02/17/98	06:04PM
DA*26682*6	S31B3 1.5'-2.5'	02/17/98	06:08PM
DA*26682*7	S31B3 6.5'-8.5'	02/17/98	06:11PM

KATALYST BATCH : P40917

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/17/98	CCB*980217*1	1008*6010/3050	Barium	MG/KG-	0.0004
02/17/98	CCB*980217*1	1028*6010/3050	Cadmium	MG/KG-	ND
02/17/98	CCB*980217*1	1029*6010/3050	Chromium	MG/KG-	ND
02/17/98	CCB*980217*2	1008*6010/3050	Barium	MG/KG-	0.0002
02/17/98	CCB*980217*2	1028*6010/3050	Cadmium	MG/KG-	ND
02/17/98	CCB*980217*2	1029*6010/3050	Chromium	MG/KG-	ND
02/17/98	CCB*980217*3	1008*6010/3050	Barium	MG/KG-	0.0003
02/17/98	CCB*980217*3	1028*6010/3050	Cadmium	MG/KG-	ND
02/17/98	CCB*980217*3	1029*6010/3050	Chromium	MG/KG-	ND
02/17/98	CCB*980217*4	1008*6010/3050	Barium	MG/KG-	0.001
02/17/98	CCB*980217*4	1028*6010/3050	Cadmium	MG/KG-	ND
02/17/98	CCB*980217*4	1029*6010/3050	Chromium	MG/KG-	0.002
02/17/98	CCB*980217*5	1008*6010/3050	Barium	MG/KG-	0.0008
02/17/98	CCB*980217*5	1028*6010/3050	Cadmium	MG/KG-	0.0009
02/17/98	CCB*980217*5	1029*6010/3050	Chromium	MG/KG-	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	CCV*980217*1	1008*6010/3050	Barium	MG/KG-	4.00	3.95	98.8	90-110
02/17/98	CCV*980217*1	1028*6010/3050	Cadmium	MG/KG-	4.00	3.92	98.0	90-110
02/17/98	CCV*980217*1	1029*6010/3050	Chromium	MG/KG-	4.00	3.83	95.8	90-110
02/17/98	CCV*980217*2	1008*6010/3050	Barium	MG/KG-	4.00	3.86	96.5	90-110
02/17/98	CCV*980217*2	1028*6010/3050	Cadmium	MG/KG-	4.00	3.94	98.5	90-110
02/17/98	CCV*980217*2	1029*6010/3050	Chromium	MG/KG-	4.00	3.85	96.3	90-110
02/17/98	CCV*980217*3	1008*6010/3050	Barium	MG/KG-	4.00	3.95	98.8	90-110
02/17/98	CCV*980217*3	1028*6010/3050	Cadmium	MG/KG-	4.00	3.99	99.8	90-110
02/17/98	CCV*980217*3	1029*6010/3050	Chromium	MG/KG-	4.00	3.90	97.5	90-110
02/17/98	CCV*980217*4	1008*6010/3050	Barium	MG/KG-	4.00	3.92	98.0	90-110
02/17/98	CCV*980217*4	1028*6010/3050	Cadmium	MG/KG-	4.00	3.99	99.8	90-110
02/17/98	CCV*980217*4	1029*6010/3050	Chromium	MG/KG-	4.00	3.88	97.0	90-110
02/17/98	CCV*980217*5	1008*6010/3050	Barium	MG/KG-	4.00	3.86	96.5	90-110
02/17/98	CCV*980217*5	1028*6010/3050	Cadmium	MG/KG-	4.00	3.93	98.3	90-110
02/17/98	CCV*980217*5	1029*6010/3050	Chromium	MG/KG-	4.00	3.83	95.8	90-110
02/17/98	CCV*980217*6	1008*6010/3050	Barium	MG/KG-	4.00	3.90	97.5	90-110
02/17/98	CCV*980217*6	1028*6010/3050	Cadmium	MG/KG-	4.00	3.98	99.5	90-110
02/17/98	CCV*980217*6	1029*6010/3050	Chromium	MG/KG-	4.00	3.89	97.3	90-110

Interference Check Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	ICS*AB*1	1008*6010/3050	Barium	MG/KG-	0.500	0.473	94.6	80-120
02/17/98	ICS*AB*1	1028*6010/3050	Cadmium	MG/KG-	1.00	0.891	89.1	80-120
02/17/98	ICS*AB*1	1029*6010/3050	Chromium	MG/KG-	0.500	0.459	91.8	80-120
02/17/98	ICS*AB*2	1008*6010/3050	Barium	MG/KG-	0.500	0.468	93.6	80-120
02/17/98	ICS*AB*2	1028*6010/3050	Cadmium	MG/KG-	1.00	0.889	88.9	80-120
02/17/98	ICS*AB*2	1029*6010/3050	Chromium	MG/KG-	0.500	0.459	91.8	80-120

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	ICV*980217*1	1008*6010/3050	Barium	MG/KG-	6.00	5.81	96.8	90-110
02/17/98	ICV*980217*1	1028*6010/3050	Cadmium	MG/KG-	6.00	5.82	97.0	90-110
02/17/98	ICV*980217*1	1029*6010/3050	Chromium	MG/KG-	6.00	5.68	94.7	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	LCS*98MP27087*1	1008*6010/3050	Barium	MG/KG-	500	469	93.8	80-120
02/17/98	LCS*98MP27087*1	1028*6010/3050	Cadmium	MG/KG-	500	467	93.4	80-120
02/17/98	LCS*98MP27087*1	1029*6010/3050	Chromium	MG/KG-	500	458	91.6	80-120
02/17/98	LCS*98MP27091*1	1029*6010/3050	Chromium	MG/KG-	500	476	95.2	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/17/98	MB*98MP27087*1	1008*6010/3050	Barium	MG/KG-	ND	1.00
02/17/98	MB*98MP27087*1	1028*6010/3050	Cadmium	MG/KG-	ND	0.500
02/17/98	MB*98MP27087*1	1029*6010/3050	Chromium	MG/KG-	0.645	1.00
02/17/98	MB*98MP27091*1	1008*6010/3050	Barium	MG/KG-	NA	1.00
02/17/98	MB*98MP27091*1	1028*6010/3050	Cadmium	MG/KG-	NA	0.500
02/17/98	MB*98MP27091*1	1029*6010/3050	Chromium	MG/KG-	0.080	1.00

KATALYST BATCH : P40917

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/17/98	**RP*26679*2**	**1008*6010/3050**	**Barium**	**MG/KG-**	**101**	**70.1**	**36.1**		**20**
02/17/98	RP*26679*2	1028*6010/3050	Cadmium	MG/KG-	0.646	<0.632			20
02/17/98	**RP*26679*2**	**1029*6010/3050**	**Chromium**	**MG/KG-**	**21.4**	**14.3**	**39.8**		**20**
02/17/98	RP*26682*2	1029*6010/3050	Chromium	MG/KG-	10.9	11.7	7.10		20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/17/98	SPM1*26679*2	1008	Barium	MG/KG-	101	632	585	92.6	75-125		
02/17/98	SPM1*26679*2	1028	Cadmium	MG/KG-	0.646	632	552	87.3	75-125		
02/17/98	SPM1*26679*2	1029	Chromium	MG/KG-	21.4	632	549	86.9	75-125		
02/17/98	SPM2*26679*2	1008	Barium	MG/KG-	101	636	604	95.0	75-125	2.60	20
02/17/98	SPM2*26679*2	1028	Cadmium	MG/KG-	0.646	636	559	87.9	75-125	0.700	20
02/17/98	SPM2*26679*2	1029	Chromium	MG/KG-	21.4	636	560	88.1	75-125	1.40	20
02/17/98	SPM1*26682*2	1029	Chromium	MG/KG-	10.9	626	563	89.9	75-125		
02/17/98	SPM2*26682*2	1029	Chromium	MG/KG-	10.9	627	553	88.2	75-125	1.90	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	SPX*26679*2	1008*6010/3050	Barium	MG/KG-	635	610	96.1	75-125
02/17/98	SPX*26679*2	1028*6010/3050	Cadmium	MG/KG-	635	589	92.8	75-125
02/17/98	SPX*26679*2	1029*6010/3050	Chromium	MG/KG-	635	587	92.4	75-125
02/17/98	SPX*26682*2	1029*6010/3050	Chromium	MG/KG-	627	588	93.8	75-125

KATALYST BATCH : P40917

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40917 Analysis Date: 02/17/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
re ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CB present?	X		
CB within acceptance criteria?	X		
CCV present?	X		
CV within acceptance criteria?	X		
ICS present?	X		
ICS within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
ample replicate present?	X		
ample replicate within acceptance criteria?		X	1008*6010/3050 1029*6010/3050
Sample matrix spike present?	X		
ample matrix spike within acceptance criteria?	X		
Sample matrix spike duplicate present?	X		
ample matrix spike duplicate within acceptance criteria?	X		
nalytical spike present?	X		
Analytical spike within acceptance criteria?	X		

ATCH OVERRIDE BY: TROY AVERY 1006

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40912
ANALYSIS : SW7421

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 11:29
ANALYSIS DATE/TIME : 02/17/98
EXTRACT DATE : 02/09/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA'26682*2	S31B1 6.2'-7'	02/16/98	09:30PM
DA'26682*3	S31B1 8'-8.5'	02/16/98	09:41PM
DA'26682*4	S31B2 5.2'-6'	02/17/98	03:18PM
DA'26682*5	S31B2 7.5'-8.5'	02/17/98	03:29PM
DA'26682*6	S31B3 1.5'-2.5'	02/17/98	03:41PM
DA'26682*7	S31B3 6.5'-8.5'	02/17/98	03:52PM

KATALYST BATCH : P40912

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/16/98	CCB*980216PB*1	1052*7421/3050	Lead	MG/KG-	ND
02/16/98	CCB*980216PB*2	1052*7421/3050	Lead	MG/KG-	ND
02/16/98	CCB*980216PB*3	1052*7421/3050	Lead	MG/KG-	ND
02/16/98	CCB*980216PB*4	1052*7421/3050	Lead	MG/KG-	ND
02/17/98	CCB*980217PB*1	1052*7421/3050	Lead	MG/KG-	ND
02/17/98	CCB*980217PB*2	1052*7421/3050	Lead	MG/KG-	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	CCV*980216PB*1	1052*7421/3050	Lead	MG/KG-	0.020	0.021	105	90-110
02/16/98	CCV*980216PB*2	1052*7421/3050	Lead	MG/KG-	0.020	0.021	105	90-110
02/16/98	CCV*980216PB*3	1052*7421/3050	Lead	MG/KG-	0.020	0.021	105	90-110
02/16/98	CCV*980216PB*4	1052*7421/3050	Lead	MG/KG-	0.020	0.022	110	90-110
02/17/98	CCV*980217PB*1	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110
02/17/98	CCV*980217PB*2	1052*7421/3050	Lead	MG/KG-	0.020	0.020	100.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	ICV*980216PB*1	1052*7421/3050	Lead	MG/KG-	0.03	0.031	103	90-110
02/17/98	ICV*980217PB*1	1052*7421/3050	Lead	MG/KG-	0.03	0.030	100	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	LCS*98MP27064*1	1052*7421/3050	Lead	MG/KG-	2.00	2.09	104.5	80-120
02/17/98	LCS*98MP27080*1	1052*7421/3050	Lead	MG/KG-	2.00	2.13	106.5	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/16/98	MB*98MP27064*1	1052*7421/3050	Lead	MG/KG-	ND	0.500
02/17/98	MB*98MP27080*1	1052*7421/3050	Lead	MG/KG-	0.066	0.500

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/16/98	**RP*26679*2**	**1052*7421/3050**	**Lead**	**MG/KG-**	**12.6**	**5.86**	**73.0**		**20**
02/17/98	RP*26679*11	1052*7421/3050	Lead	MG/KG-	8.95	7.63	15.9		20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/16/98	**SPM1*26679*2**	**1052**	**Lead**	**MG/KG-**	**12.6**	**2.52**	**-2.00**	**N/C**	**75-125**		
02/16/98	**SPM2*26679*2**	**1052**	**Lead**	**MG/KG-**	**12.6**	**2.54**	**-4.72**	**N/C**	**75-125**		
02/17/98	**SPM1*26679*11**	**1052**	**Lead**	**MG/KG-**	**8.95**	**3.04**	**1.55**	**51.0**	**75-125**		
02/17/98	**SPM2*26679*11**	**1052**	**Lead**	**MG/KG-**	**8.95**	**3.01**	**1.45**	**48.2**	**75-125**	**5.60**	**20**

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	SPX*26679*1	1052*7421/3050	Lead	MG/KG-	12.5	11.6	92.8	85-115
02/16/98	SPX*26679*2	1052*7421/3050	Lead	MG/KG-	12.6	12.2	96.8	85-115
02/16/98	SPX*26679*3	1052*7421/3050	Lead	MG/KG-	13.6	13.5	99.3	85-115
02/16/98	SPX*26679*4	1052*7421/3050	Lead	MG/KG-	13.0	13.4	103.1	85-115
02/16/98	SPX*26679*5	1052*7421/3050	Lead	MG/KG-	12.6	12.3	97.6	85-115
02/16/98	SPX*26679*6	1052*7421/3050	Lead	MG/KG-	13.2	13.8	104.5	85-115
02/16/98	SPX*26679*7	1052*7421/3050	Lead	MG/KG-	13.4	13.0	97.0	85-115
02/16/98	SPX*26679*8	1052*7421/3050	Lead	MG/KG-	14.3	14.6	102.1	85-115
02/16/98	SPX*26679*9	1052*7421/3050	Lead	MG/KG-	14.9	15.5	104.0	85-115
02/16/98	SPX*26679*10	1052*7421/3050	Lead	MG/KG-	12.7	12.5	98.4	85-115
02/16/98	SPX*26682*2	1052*7421/3050	Lead	MG/KG-	12.7	12.7	100.0	85-115
02/16/98	SPX*26682*3	1052*7421/3050	Lead	MG/KG-	13.5	13.3	98.5	85-115
02/17/98	SPX*26679*11	1052*7421/3050	Lead	MG/KG-	15.3	14.7	96.1	85-115
02/17/98	SPX*26682*4	1052*7421/3050	Lead	MG/KG-	12.4	11.7	94.4	85-115
02/17/98	SPX*26682*5	1052*7421/3050	Lead	MG/KG-	12.9	12.4	96.1	85-115
02/17/98	SPX*26682*6	1052*7421/3050	Lead	MG/KG-	12.6	12.1	96.0	85-115
02/17/98	SPX*26682*7	1052*7421/3050	Lead	MG/KG-	13.5	12.9	95.6	85-115

KATALYST BATCH : P40912

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40912 Analysis Date: 02/17/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCB present?	X		
CCB within acceptance criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?		X	1052*7421/3050
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	1052*7421/3050
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?		X	1052*7421/3050
Analytical spike present?	X		
Analytical spike within acceptance criteria?	X		

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40940
NALYSIS : SW7060

C TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
ATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 11:30
ANALYSIS DATE/TIME : 02/12/98
EXTRACT DATE : 02/09/98

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

AMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*2	S31B1 6.2'-7'	02/18/98	02:46PM
DA*26682*3	S31B1 8'-8.5'	02/18/98	03:09PM
DA*26682*4	S31B2 5.2'-6'	02/18/98	03:21PM
DA*26682*5	S31B2 7.5'-8.5'	02/18/98	03:33PM
DA*26682*6	S31B3 1.5'-2.5'	02/18/98	03:45PM
DA*26682*7	S31B3 6.5'-8.5'	02/18/98	04:09PM
DA*26682*8	S17B5 5.5'-7'	02/18/98	04:21PM
DA*26682*9	S17B6 9.5'-11'	02/18/98	04:32PM

KATALYST BATCH : P40940

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/17/98	CCB*980217AS*1	1003*7060/3050	Arsenic	MG/KG-	0.0006
02/18/98	CCB*980218AS*1	1003*7060/3050	Arsenic	MG/KG-	ND
02/18/98	CCB*980218AS*2	1003*7060/3050	Arsenic	MG/KG-	ND
02/18/98	CCB*980218AS*3	1003*7060/3050	Arsenic	MG/KG-	0.0003
02/18/98	CCB*980218AS*4	1003*7060/3050	Arsenic	MG/KG-	0.0004
02/18/98	CCB*980218AS*5	1003*7060/3050	Arsenic	MG/KG-	ND
02/18/98	CCB*980218AS*6	1003*7060/3050	Arsenic	MG/KG-	0.0004
02/18/98	CCB*980218AS*7	1003*7060/3050	Arsenic	MG/KG-	ND
02/12/98	CCB*980212AS*1	1003*7060/3050	Arsenic	MG/KG-	ND
02/13/98	CCB*980212AS*2	1003*7060/3050	Arsenic	MG/KG-	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	CCV*980217AS*1	1003*7060/3050	Arsenic	MG/KG-	0.020	0.019	95.0	90-110
02/18/98	CCV*980218AS*1	1003*7060/3050	Arsenic	MG/KG-	0.020	0.022	110	90-110
02/18/98	CCV*980218AS*2	1003*7060/3050	Arsenic	MG/KG-	0.020	0.021	105	90-110
02/18/98	CCV*980218AS*3	1003*7060/3050	Arsenic	MG/KG-	0.020	0.020	100.0	90-110
02/18/98	CCV*980218AS*4	1003*7060/3050	Arsenic	MG/KG-	0.020	0.020	100.0	90-110
02/18/98	CCV*980218AS*5	1003*7060/3050	Arsenic	MG/KG-	0.020	0.020	100.0	90-110
02/18/98	CCV*980218AS*6	1003*7060/3050	Arsenic	MG/KG-	0.020	0.019	95.0	90-110
02/18/98	CCV*980218AS*7	1003*7060/3050	Arsenic	MG/KG-	0.020	0.019	95.0	90-110
02/12/98	CCV*980212AS*1	1003*7060/3050	Arsenic	MG/KG-	0.020	0.019	95.0	90-110
02/13/98	CCV*980212AS*2	1003*7060/3050	Arsenic	MG/KG-	0.020	0.019	95.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	ICV*980217AS*1	1003*7060/3050	Arsenic	MG/KG-	0.030	0.028	93.3	90-110
02/18/98	ICV*980218AS*1	1003*7060/3050	Arsenic	MG/KG-	0.030	0.031	103	90-110
02/18/98	ICV*980218AS*2	1003*7060/3050	Arsenic	MG/KG-	0.030	0.029	96.7	90-110
02/12/98	ICV*980212AS*1	1003*7060/3050	Arsenic	MG/KG-	0.030	0.029	96.7	90-110
02/13/98	ICV*980212AS*2	1003*7060/3050	Arsenic	MG/KG-	0.030	0.029	96.7	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	LCS*98MP27064*1	1003*7060/3050	Arsenic	MG/KG-	2.00	1.64	82.0	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/12/98	MB*98MP27064*1	1003*7060/3050	Arsenic	MG/KG-	ND	5.00

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/17/98	RP*26679*2	1003*7060/3050	Arsenic	MG/KG-	20.2	11.5			20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/17/98	**SPM1*26679*2**	**1003**	**Arsenic**	**MG/KG-**	**20.2**	**2.52**	**-5.80**	**N/C**	**75-125**		
02/17/98	**SPM2*26679*2**	**1003**	**Arsenic**	**MG/KG-**	**20.2**	**2.54**	**-3.30**	**N/C**	**75-125**		

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	**SPX*26679*1**	**1003*7060/3050**	**Arsenic**	**MG/KG-**	**12.5**	**15.6**	**124.8**	**85-115**
02/17/98	**SPX*26679*2**	**1003*7060/3050**	**Arsenic**	**MG/KG-**	**25.2**	**30.8**	**122.2**	**85-115**
02/18/98	**SPX*26679*3**	**1003*7060/3050**	**Arsenic**	**MG/KG-**	**13.6**	**16.0**	**117.6**	**85-115**
02/18/98	SPX*26679*4	1003*7060/3050	Arsenic	MG/KG-	13.0	14.1	108.5	85-115
02/18/98	**SPX*26679*5**	**1003*7060/3050**	**Arsenic**	**MG/KG-**	**12.6**	**14.7**	**116.7**	**85-115**
02/18/98	SPX*26679*6	1003*7060/3050	Arsenic	MG/KG-	5.29	5.81	109.8	85-115
02/18/98	SPX*26679*7	1003*7060/3050	Arsenic	MG/KG-	26.9	29.0	107.8	85-115
02/18/98	**SPX*26679*9**	**1003*7060/3050**	**Arsenic**	**MG/KG-**	**14.9**	**17.6**	**118.1**	**85-115**
02/18/98	SPX*26679*10	1003*7060/3050	Arsenic	MG/KG-	12.7	13.9	109.4	85-115
02/18/98	SPX*26682*2	1003*7060/3050	Arsenic	MG/KG-	2.53	2.67	105.5	85-115
02/18/98	SPX*26682*3	1003*7060/3050	Arsenic	MG/KG-	5.39	5.49	101.9	85-115
02/18/98	SPX*26682*4	1003*7060/3050	Arsenic	MG/KG-	12.4	13.0	104.8	85-115
02/18/98	SPX*26682*5	1003*7060/3050	Arsenic	MG/KG-	2.58	2.80	108.5	85-115
02/18/98	SPX*26682*6	1003*7060/3050	Arsenic	MG/KG-	12.6	13.7	108.7	85-115
02/18/98	SPX*26682*7	1003*7060/3050	Arsenic	MG/KG-	2.69	2.86	106.3	85-115

KATALYST BATCH : P40940

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/13/98	SPX*26679*8	1003*7060/3050	Arsenic	MG/KG-	2.86	2.43	85.0	85-115

KATALYST BATCH : P40940

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40940 Analysis Date: 02/12/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No		
Are ALL units documented in batch?	X			
Analysis holding time within criteria?	X			
CCB present?	X			
CCB within acceptance criteria?	X			
CCV present?	X			
CCV within acceptance criteria?	X			
ICV present?	X			
ICV within acceptance criteria?	X			
LCS present?	X			
LCS within acceptance criteria?	X			
Method blank present?	X			
Method blank within acceptance criteria?	X			
Sample replicate present?	X			
Sample replicate within acceptance criteria?		X	1003*7060/3050	
Sample matrix spike present?	X			
Sample matrix spike within acceptance criteria?		X	1003*7060/3050	SPX*26679*1 Exceeds criteria. (Recovery Limit 100
Sample matrix spike duplicate present?	X			
Sample matrix spike duplicate within acceptance criteria?		X	1003*7060/3050	SPX*26679*1 Exceeds criteria. (Recovery Limit 100
Analytical spike present?	X			
Analytical spike within acceptance criteria?		X	1003*7060/3050	

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40936
ANALYSIS : SW7740

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 11:30
ANALYSIS DATE/TIME : 02/16/98
EXTRACT DATE : 02/09/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*2	S31B1 6.2'-7'	02/12/98	03:44PM
DA*26682*3	S31B1 8'-8.5'	02/12/98	03:56PM
DA*26682*4	S31B2 5.2'-6'	02/12/98	04:07PM
DA*26682*5	S31B2 7.5'-8.5'	02/12/98	04:30PM
DA*26682*6	S31B3 1.5'-2.5'	02/12/98	04:42PM
DA*26682*7	S31B3 6.5'-8.5'	02/12/98	04:53PM
DA*26682*8	S17B5 5.5'-7'	02/12/98	05:04PM
DA*26682*9	S17B6 9.5'-11'	02/12/98	05:15PM

KATALYST BATCH : P40936

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
2/12/98	CCB*980212SE*1	1148*7740/3050	Selenium	MG/KG-	0.001
2/12/98	CCB*980212SE*2	1148*7740/3050	Selenium	MG/KG-	0.001
02/16/98	CCB*980216SE*1	1148*7740/3050	Selenium	MG/KG-	ND
02/16/98	CCB*980216SE*2	1148*7740/3050	Selenium	MG/KG-	ND
2/16/98	CCB*980216SE*3	1148*7740/3050	Selenium	MG/KG-	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
2/12/98	CCV*980212SE*1	1148*7740/3050	Selenium	MG/KG-	0.020	0.020	100.0	90-110
2/12/98	CCV*980212SE*2	1148*7740/3050	Selenium	MG/KG-	0.020	0.021	105	90-110
02/16/98	CCV*980216SE*1	1148*7740/3050	Selenium	MG/KG-	0.020	0.019	95.0	90-110
02/16/98	CCV*980216SE*2	1148*7740/3050	Selenium	MG/KG-	0.020	0.019	95.0	90-110
2/16/98	CCV*980216SE*3	1148*7740/3050	Selenium	MG/KG-	0.020	0.018	90.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
2/12/98	ICV*980212SE*1	1148*7740/3050	Selenium	MG/KG-	0.030	0.031	103	90-110
2/16/98	ICV*980216SE*1	1148*7740/3050	Selenium	MG/KG-	0.030	0.031	103	90-110

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
2/12/98	MB*98MP27064*1	1148*7740/3050	Selenium	MG/KG-	0.073	0.500

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	SPX*26682*2	1148*7740/3050	Selenium	MG/KG-	2.53	2.30	90.9	85-115
02/12/98	SPX*26682*3	1148*7740/3050	Selenium	MG/KG-	2.70	2.68	99.3	85-115
2/12/98	**SPX*26682*4**	**1148*7740/3050**	**Selenium**	**MG/KG-**	**2.47**	**2.04**	**82.6**	**85-115**
2/12/98	SPX*26682*5	1148*7740/3050	Selenium	MG/KG-	2.58	2.58	100.0	85-115
2/12/98	SPX*26682*6	1148*7740/3050	Selenium	MG/KG-	2.51	2.37	94.4	85-115
02/12/98	SPX*26682*7	1148*7740/3050	Selenium	MG/KG-	2.69	2.48	92.2	85-115

KATALYST BATCH : P40936

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40936 Analysis Date: 02/16/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCB present?	X		
CCB within acceptance criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?		X	
LCS within acceptance criteria?			
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?		X	
Sample replicate within acceptance criteria?			
Sample matrix spike present?		X	
Sample matrix spike within acceptance criteria?			
Analytical spike present?	X		
Analytical spike within acceptance criteria?		X	1148*7740/3050

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40873
NALYSIS : SW7471

QC TYPE : FDER/SW
ANALYST : TODD PETERSON
EXTRACTOR : TOM FERRELL
ATA ENTRY : TODD PETERSON

REPORT DATE/TIME : 03/09/98 11:30
ANALYSIS DATE/TIME : 02/09/98
EXTRACT DATE : 02/08/98

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

ATCH NOTES
7471 HG

IELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
6682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
A*26682*2	S31B1 6.2'-7'	02/11/98	03:25PM
A*26682*3	S31B1 8'-8.5'	02/11/98	03:34PM
A*26682*4	S31B2 5.2'-6'	02/11/98	03:37PM
A*26682*5	S31B2 7.5'-8.5'	02/11/98	03:44PM
A*26682*6	S31B3 1.5'-2.5'	02/11/98	03:46PM
A*26682*7	S31B3 6.5'-8.5'	02/11/98	03:48PM
A*26682*5*C	S31B2 7.5'-8.5'	02/11/98	04:42PM
A*26682*6*C	S31B3 1.5'-2.5'	02/11/98	04:45PM
A*26682*7*C	S31B3 6.5'-8.5'	02/11/98	04:47PM

KATALYST BATCH : P40873

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/09/98	CCB*980209HG*1	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*3	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*4	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*5	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*6	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*7	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*8	71921*7471	Mercury	MG/KG-	ND
02/09/98	CCB*980209HG*9	71921*7471	Mercury	MG/KG-	0.00002
02/09/98	CCB*980209HG*10	71921*7471	Mercury	MG/KG-	ND
02/11/98	CCB*980211HG*1	71921*7471	Mercury	MG/KG-	0.00008
02/11/98	CCB*980211HG*2	71921*7471	Mercury	MG/KG-	0.00007
02/11/98	CCB*980211HG*3	71921*7471	Mercury	MG/KG-	0.00008
02/11/98	CCB*980211HG*4	71921*7471	Mercury	MG/KG-	0.00008
02/11/98	CCB*980211HG*5	71921*7471	Mercury	MG/KG-	0.00008

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	CCV*980209HG*1	71921*7471	Mercury	MG/KG-	0.0050	0.0051	102.0	90-110
02/09/98	CCV*980209HG*3	71921*7471	Mercury	MG/KG-	0.0050	0.0050	100.00	90-110
02/09/98	CCV*980209HG*4	71921*7471	Mercury	MG/KG-	0.0050	0.0049	98.00	90-110
02/09/98	CCV*980209HG*5	71921*7471	Mercury	MG/KG-	0.0050	0.0048	96.00	90-110
02/09/98	CCV*980209HG*6	71921*7471	Mercury	MG/KG-	0.0050	0.0048	96.00	90-110
02/09/98	CCV*980209HG*7	71921*7471	Mercury	MG/KG-	0.0050	0.0048	96.00	90-110
02/09/98	CCV*980209HG*8	71921*7471	Mercury	MG/KG-	0.0050	0.0048	96.00	90-110
02/09/98	CCV*980209HG*9	71921*7471	Mercury	MG/KG-	0.0050	0.0047	94.00	90-110
02/09/98	CCV*980209HG*10	71921*7471	Mercury	MG/KG-	0.0050	0.0047	94.00	90-110
02/11/98	CCV*980211HG*1	71921*7471	Mercury	MG/KG-	0.0050	0.0051	102.0	90-110
02/11/98	CCV*980211HG*2	71921*7471	Mercury	MG/KG-	0.0050	0.0052	104.0	90-110
02/11/98	CCV*980211HG*3	71921*7471	Mercury	MG/KG-	0.0050	0.0052	104.0	90-110
02/11/98	CCV*980211HG*4	71921*7471	Mercury	MG/KG-	0.0050	0.0052	104.0	90-110
02/11/98	CCV*980211HG*5	71921*7471	Mercury	MG/KG-	0.0050	0.0051	102.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	**ICV*980209HG*1**	**71921*7471**	**Mercury**	**MG/KG-**	**0.0025**	**0.0028**	**112.0**	**90-110**
02/11/98	ICV*980211HG*1	71921*7471	Mercury	MG/KG-	0.0025	0.0027	108.0	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	LCS*MP27059*1	71921*7471	Mercury	MG/KG-	0.1667	0.1883	112.96	80-120
02/09/98	LCS*MP27061*1	71921*7471	Mercury	MG/KG-	0.1667	0.1750	104.98	80-120
02/11/98	LCS*MP27066*1	71921*7471	Mercury	MG/KG-	0.1667	0.1917	115.00	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/09/98	MB*MP27059*1	71921*7471	Mercury	MG/KG-	0.0008	0.0200
02/09/98	MB*MP27061*1	71921*7471	Mercury	MG/KG-	ND	0.0200
02/11/98	MB*MP27066*1	71921*7471	Mercury	MG/KG-	0.0187	0.0200

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/11/98	**RP*26682*2**	**71921*7471**	**Mercury**	**MG/KG-**	**0.0491**	**0.0646**	**27.30**		**20**
02/11/98	RP*26653*11	71921*7471	Mercury	MG/KG-	0.0673	0.0600	11.50		20
02/11/98	RP*26679*2	71921*7471	Mercury	MG/KG-	0.0532	0.0647	19.50		20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/11/98	SPM1*26682*2	71921	Mercury	MG/KG-	0.0491	0.2126	0.2400	112.89	75-125		
02/11/98	**SPM2*26682*2**	**71921**	**Mercury**	**MG/KG-**	**0.0491**	**0.2126**	**0.2804**	**131.89**	**75-125**	**15.50**	**20**
02/11/98	SPM1*26653*11	71921	Mercury	MG/KG-	0.0673	0.2151	0.2273	105.67	75-125		
02/11/98	SPM2*26653*11	71921	Mercury	MG/KG-	0.0673	0.2151	0.2424	112.69	75-125	6.400	20
02/11/98	SPM1*26679*2	71921	Mercury	MG/KG-	0.0532	0.2129	0.2427	114.00	75-125		
02/11/98	SPM2*26679*2	71921	Mercury	MG/KG-	0.0532	0.2129	0.2427	114.00	75-125	0.0	20

KATALYST BATCH : P40873

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40873 Analysis Date: 02/09/98 Analyst: TODD PETERSON Report Date: 03/09/98

	Yes	No	
re ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CB present?	X		
CCB within acceptance criteria?	X		
CV present?	X		
CV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
CS present?	X		
LCS within acceptance criteria?	X		
ethod blank present?	X		
ethod blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?		X	71921*7471
ample matrix spike present?	X		
Sample matrix spike within acceptance criteria?	X		
Sample matrix spike duplicate present?	X		
ample matrix spike duplicate within acceptance criteria?		X	71921*7471

BATCH OVERRIDE BY: MIKE TRAVIS 1003

INALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40844
ANALYSIS : E160.3

QC TYPE : FDER/SW
ANALYST : Marcy Fritz
EXTRACTOR :
DATA ENTRY : SPREADSHEET UPLOAD

REPORT DATE/TIME : 03/09/98 11:31
ANALYSIS DATE/TIME : 02/09/98 14:45
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*2	S31B1 6.2'-7'		
DA*26682*3	S31B1 8'-8.5'		
DA*26682*4	S31B2 5.2'-6'		
DA*26682*5	S31B2 7.5'-8.5'		
DA*26682*6	S31B3 1.5'-2.5'		
DA*26682*7	S31B3 6.5'-8.5'		
DA*26682*8	S17B5 5.5'-7'		
DA*26682*9	S17B6 9.5'-11'		

KATALYST BATCH : P40844

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40844 Analysis Date: 02/09/98 Analyst: Marcy Fritz Report Date: 03/09/98

	Yes	No
Are ALL units documented in batch?	X	
Analysis holding time within criteria?	X	

BATCH OVERRIDE BY:

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40892
NALYSIS : SW8310

QC TYPE : FDER/SW
ANALYST :
EXTRACTOR :
ATA ENTRY :

REPORT DATE/TIME : 03/09/98 11:31
ANALYSIS DATE/TIME : 02/14/98
EXTRACT DATE :

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

ATCH NOTES
8310/SOIL

IELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
6682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
A*26682*2	S31B1 6.2'-7'	02/14/98	09:29PM
A*26682*3	S31B1 8'-8.5'	02/14/98	10:25PM
DA*26682*4	S31B2 5.2'-6'	02/14/98	11:21PM
DA*26682*5	S31B2 7.5'-8.5'	02/15/98	12:18AM
A*26682*6	S31B3 1.5'-2.5'	02/15/98	01:14AM
A*26682*7	S31B3 6.5'-8.5'	02/15/98	02:11AM

KATALYST BATCH : P40892

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/14/98	CCV*L40214*1	34445*8310/3550S	Naphthalene	UG/KG-	40.0	44.9	112	85-115
02/14/98	CCV*L40214*1	34203*8310/3550S	Acenaphthylene	UG/KG-	40.0	44.8	112	85-115
02/14/98	CCV*L40214*1	34208*8310/3550S	Acenaphthene	UG/KG-	40.0	42.8	107	85-115
02/14/98	CCV*L40214*1	34384*8310/3550S	Fluorene	UG/KG-	40.0	42.3	106	85-115
02/14/98	CCV*L40214*1	34464*8310/3550S	Phenanthrene	UG/KG-	2.00	2.10	105	85-115
02/14/98	CCV*L40214*1	34223*8310/3550S	Anthracene	UG/KG-	0.40	0.40	100.0	85-115
02/14/98	CCV*L40214*1	34379*8310/3550S	Fluoranthene	UG/KG-	2.00	2.06	103	85-115
02/14/98	CCV*L40214*1	34472*8310/3550S	Pyrene	UG/KG-	2.00	2.13	107	85-115
02/14/98	CCV*L40214*1	34529*8310/3550S	Benzo(a)anthracene	UG/KG-	2.00	2.01	101	85-115
02/14/98	CCV*L40214*1	34323*8310/3550S	Chrysene	UG/KG-	2.00	2.02	101	85-115
02/14/98	CCV*L40214*1	34233*8310/3550S	Benzo(b)fluoranthene	UG/KG-	2.00	1.97	98.5	85-115
02/14/98	CCV*L40214*1	34245*8310/3550S	Benzo(k)fluoranthene	UG/KG-	1.00	0.99	99.0	85-115
02/14/98	CCV*L40214*1	34250*8310/3550S	Benzo(a)pyrene	UG/KG-	2.00	2.24	112	85-115
02/14/98	CCV*L40214*1	34559*8310/3550S	Dibenz(a,h)anthracene	UG/KG-	2.00	2.07	104	85-115
02/14/98	CCV*L40214*1	34524*8310/3550S	Benzo(g,h,i)perylene	UG/KG-	2.00	1.97	98.5	85-115
02/14/98	CCV*L40214*1	34406*8310/3550S	Indeno(1,2,3-cd) pyrene	UG/KG-	2.00	2.12	106	85-115

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/14/98	LCS*3577*1	34445*8310/3550S	Naphthalene	UG/KG-	667	747	112.0	30-150
02/14/98	LCS*3577*1	34208*8310/3550S	Acenaphthene	UG/KG-	667	827	124.0	31-134
02/14/98	LCS*3577*1	34464*8310/3550S	Phenanthrene	UG/KG-	100.0	132	132.0	30-150
02/14/98	LCS*3577*1	34472*8310/3550S	Pyrene	UG/KG-	167	226	135.3	30-150
02/14/98	LCS*3577*1	34323*8310/3550S	Chrysene	UG/KG-	100.0	141	141.0	30-150
02/14/98	LCS*3577*1	34233*8310/3550S	Benzo(b)fluoranthene	UG/KG-	100.0	136	136.0	30-150

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/14/98	MB*3577*1	34445*8310/3550S	Naphthalene	UG/KG-	ND	33.3
02/14/98	MB*3577*1	34203*8310/3550S	Acenaphthylene	UG/KG-	ND	33.3
02/14/98	MB*3577*1	34208*8310/3550S	Acenaphthene	UG/KG-	ND	33.3
02/14/98	MB*3577*1	34384*8310/3550S	Fluorene	UG/KG-	2.80	33.3
02/14/98	MB*3577*1	34464*8310/3550S	Phenanthrene	UG/KG-	1.68	3.33
02/14/98	MB*3577*1	34223*8310/3550S	Anthracene	UG/KG-	0.10	3.33
02/14/98	MB*3577*1	34379*8310/3550S	Fluoranthene	UG/KG-	1.40	3.33
02/14/98	MB*3577*1	34472*8310/3550S	Pyrene	UG/KG-	1.52	3.33
02/14/98	MB*3577*1	34529*8310/3550S	Benzo(a)anthracene	UG/KG-	ND	3.33
02/14/98	MB*3577*1	34323*8310/3550S	Chrysene	UG/KG-	0.83	3.33
02/14/98	MB*3577*1	34233*8310/3550S	Benzo(b)fluoranthene	UG/KG-	0.71	3.33
02/14/98	MB*3577*1	34245*8310/3550S	Benzo(k)fluoranthene	UG/KG-	0.21	3.33
02/14/98	MB*3577*1	34250*8310/3550S	Benzo(a)pyrene	UG/KG-	0.36	3.33
02/14/98	MB*3577*1	34559*8310/3550S	Dibenz(a,h)anthracene	UG/KG-	ND	3.33
02/14/98	MB*3577*1	34524*8310/3550S	Benzo(g,h,i)perylene	UG/KG-	ND	3.33
02/14/98	MB*3577*1	34406*8310/3550S	Indeno(1,2,3-cd) pyrene	UG/KG-	3.26	3.33

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/14/98	DA*26682*2	97990*SUR	TRIPHENYLENE	UG/KG-	200	253	127	31-174
02/14/98	DA*26682*3	97990*SUR	TRIPHENYLENE	UG/KG-	200	245	123	31-174
02/14/98	DA*26682*4	97990*SUR	TRIPHENYLENE	UG/KG-	200	260	130	31-174
02/15/98	DA*26682*5	97990*SUR	TRIPHENYLENE	UG/KG-	200	244	122	31-174
02/15/98	DA*26682*6	97990*SUR	TRIPHENYLENE	UG/KG-	200	215	108	31-174
02/15/98	DA*26682*7	97990*SUR	TRIPHENYLENE	UG/KG-	200	212	106	31-174

KATALYST BATCH : P40892

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40892 Analysis Date: 02/14/98 Analyst: Report Date: 03/09/98

	Yes	No
Are ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
Extraction holding time within criteria?	X	
Sample retention times within window?	X	
Sample relative retention times within window?	X	
CCV present?	X	
CCV within acceptance criteria?	X	
LCS present?	X	
LCS within acceptance criteria?	X	
Method blank present?	X	
Method blank within acceptance criteria?	X	
Sample matrix spike present?		X
Sample matrix spike within acceptance criteria?		
Surrogate present?	X	
Surrogate within acceptance criteria?	X	

BATCH OVERRIDE BY: TROY AVERY 1006

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P41047
ANALYSIS : 8240

QC TYPE : FDER/SW
ANALYST : TROY AVERY
EXTRACTOR :
DATA ENTRY : GCMS UPLOAD

REPORT DATE/TIME : 03/09/98 11:31
ANALYSIS DATE/TIME : 03/02/98
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
8240 SOILS

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*2	S31B1 6.2'-7'	02/19/98	03:15PM
DA*26682*3	S31B1 8'-8.5'	02/19/98	04:45PM
DA*26682*4	S31B2 5.2'-6'	02/19/98	05:14PM
DA*26682*5	S31B2 7.5'-8.5'	02/19/98	05:44PM
DA*26682*6	S31B3 1.5'-2.5'	02/19/98	06:14PM
DA*26682*7	S31B3 6.5'-8.5'	02/19/98	06:44PM
DA*26682*8	S17B5 5.5'-7'	02/19/98	07:13PM
DA*26682*9	S17B6 9.5'-11'	02/19/98	07:43PM

KATALYST BATCH : P41047

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	LCS*H021698*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	64.6	129.2	59-172
02/16/98	LCS*H021698*1	34237*8240/5030	Benzene	UG/KG-	50.0	63.9	127.8	66-142
02/16/98	LCS*H021698*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	54.7	109.4	62-137
02/16/98	LCS*H021698*1	34483*8240/5030	Toluene	UG/KG-	50.0	64.6	129.2	59-139
02/16/98	LCS*H021698*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	61.5	123.0	60-133
02/17/98	LCS*H021798*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	66.5	133.0	59-172
02/17/98	LCS*H021798*1	34237*8240/5030	Benzene	UG/KG-	50.0	60.0	120.0	66-142
02/17/98	LCS*H021798*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	50.7	101.4	62-137
02/17/98	LCS*H021798*1	34483*8240/5030	Toluene	UG/KG-	50.0	58.5	117.0	59-139
02/17/98	LCS*H021798*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	54.4	108.8	60-133
02/18/98	LCS*H021898*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	76.3	152.6	59-172
02/18/98	LCS*H021898*1	34237*8240/5030	Benzene	UG/KG-	50.0	65.1	130.2	66-142
02/18/98	LCS*H021898*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	55.0	110.0	62-137
02/18/98	LCS*H021898*1	34483*8240/5030	Toluene	UG/KG-	50.0	62.1	124.2	59-139
02/18/98	LCS*H021898*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	58.0	116.0	60-133
02/19/98	LCS*H021998*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	61.5	123.0	59-172
02/19/98	LCS*H021998*1	34237*8240/5030	Benzene	UG/KG-	50.0	57.4	114.8	66-142
02/19/98	LCS*H021998*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	51.2	102.4	62-137
02/19/98	LCS*H021998*1	34483*8240/5030	Toluene	UG/KG-	50.0	53.9	107.8	59-139
02/19/98	LCS*H021998*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	54.2	108.4	60-133
02/20/98	LCS*H022098*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	65.0	130.0	59-172
02/20/98	LCS*H022098*1	34237*8240/5030	Benzene	UG/KG-	50.0	56.3	112.6	66-142
02/20/98	LCS*H022098*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	47.9	95.8	62-137
02/20/98	LCS*H022098*1	34483*8240/5030	Toluene	UG/KG-	50.0	50.5	101.0	59-139
02/20/98	LCS*H022098*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	50.0	100.0	60-133
03/01/98	LCS*H030198*3	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	57.5	115.0	59-172
03/01/98	LCS*H030198*3	34237*8240/5030	Benzene	UG/KG-	50.0	54.3	108.6	66-142
03/01/98	LCS*H030198*3	34487*8240/5030	Trichloroethene	UG/KG-	50.0	54.3	108.6	62-137
03/01/98	LCS*H030198*3	34483*8240/5030	Toluene	UG/KG-	50.0	54.1	108.2	59-139
03/01/98	LCS*H030198*3	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	55.0	110.0	60-133
03/02/98	LCS*H030298*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	59.7	119.4	59-172
03/02/98	LCS*H030298*1	34237*8240/5030	Benzene	UG/KG-	50.0	56.1	112.2	66-142
03/02/98	LCS*H030298*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	57.1	114.2	62-137
03/02/98	LCS*H030298*1	34483*8240/5030	Toluene	UG/KG-	50.0	56.2	112.4	59-139
03/02/98	LCS*H030298*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	57.6	115.2	60-133

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/16/98	MB*H021698*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75059*8240/5030	Acetone	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34426*8240/5030	Methylene Chloride	UG/KG-	1.43	5.00
02/16/98	MB*H021698*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75078*8240/5030	2-Butanone	UG/KG-	2.28	10.00
02/16/98	MB*H021698*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34478*8240/5030	Tetrachloroethene	UG/KG-	0.57	5.00
02/16/98	MB*H021698*1	75166*8240/5030	2-Hexanone	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00

KATALYST BATCH : P41047

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/16/98	MB*H021698*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75059*8240/5030	Acetone	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34426*8240/5030	Methylene Chloride	UG/KG-	1.28	5.00
02/17/98	MB*H021798*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75078*8240/5030	2-Butanone	UG/KG-	4.00	10.00
02/17/98	MB*H021798*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34478*8240/5030	Tetrachloroethene	UG/KG-	0.67	5.00
02/17/98	MB*H021798*1	75166*8240/5030	2-Hexanone	UG/KG-	0.91	10.00
02/17/98	MB*H021798*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75059*8240/5030	Acetone	UG/KG-	5.77	10.00
02/18/98	MB*H021898*1	34426*8240/5030	Methylene Chloride	UG/KG-	0.53	5.00
02/18/98	MB*H021898*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75078*8240/5030	2-Butanone	UG/KG-	2.26	10.00
02/18/98	MB*H021898*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34478*8240/5030	Tetrachloroethene	UG/KG-	2.82	5.00
02/18/98	MB*H021898*1	75166*8240/5030	2-Hexanone	UG/KG-	0.89	10.00
02/18/98	MB*H021898*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/19/98	MB*H021998*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00

KATALYST BATCH : P41047

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/19/98	MB*HO21998*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/19/98	MB*HO21998*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/19/98	MB*HO21998*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	75059*8240/5030	Acetone	UG/KG-	3.47	10.00
02/19/98	MB*HO21998*1	34426*8240/5030	Methylene Chloride	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	75078*8240/5030	2-Butanone	UG/KG-	2.42	10.00
02/19/98	MB*HO21998*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	34487*8240/5030	Trichloroethene	UG/KG-	0.52	5.00
02/19/98	MB*HO21998*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/19/98	MB*HO21998*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	34478*8240/5030	Tetrachloroethene	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	75166*8240/5030	2-Hexanone	UG/KG-	1.09	10.00
02/19/98	MB*HO21998*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/19/98	MB*HO21998*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/20/98	MB*HO22098*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/20/98	MB*HO22098*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/20/98	MB*HO22098*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/20/98	MB*HO22098*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	75059*8240/5030	Acetone	UG/KG-	3.35	10.00
02/20/98	MB*HO22098*1	34426*8240/5030	Methylene Chloride	UG/KG-	0.65	5.00
02/20/98	MB*HO22098*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	75078*8240/5030	2-Butanone	UG/KG-	3.88	10.00
02/20/98	MB*HO22098*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/20/98	MB*HO22098*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34478*8240/5030	Tetrachloroethene	UG/KG-	0.95	5.00
02/20/98	MB*HO22098*1	75166*8240/5030	2-Hexanone	UG/KG-	1.36	10.00
02/20/98	MB*HO22098*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/20/98	MB*HO22098*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
03/01/98	MB*HO30198*4	34421*8240/5030	Chloromethane	UG/KG-	ND	1250
03/01/98	MB*HO30198*4	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	1250
03/01/98	MB*HO30198*4	34416*8240/5030	Bromomethane	UG/KG-	ND	1250
03/01/98	MB*HO30198*4	34314*8240/5030	Chloroethane	UG/KG-	ND	1250
03/01/98	MB*HO30198*4	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	625

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Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
03/01/98	MB*H030198*4	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	625
03/01/98	MB*H030198*4	75059*8240/5030	Acetone	UG/KG-	795	1250
03/01/98	MB*H030198*4	34426*8240/5030	Methylene Chloride	UG/KG-	105	625
03/01/98	MB*H030198*4	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	625
03/01/98	MB*H030198*4	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	625
03/01/98	MB*H030198*4	75078*8240/5030	2-Butanone	UG/KG-	289	1250
03/01/98	MB*H030198*4	34318*8240/5030	Chloroform	UG/KG-	ND	625
03/01/98	MB*H030198*4	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	625
03/01/98	MB*H030198*4	34237*8240/5030	Benzene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34487*8240/5030	Trichloroethene	UG/KG-	95.7	625
03/01/98	MB*H030198*4	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	625
03/01/98	MB*H030198*4	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	1250
03/01/98	MB*H030198*4	34483*8240/5030	Toluene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34478*8240/5030	Tetrachloroethene	UG/KG-	124	625
03/01/98	MB*H030198*4	75166*8240/5030	2-Hexanone	UG/KG-	286	1250
03/01/98	MB*H030198*4	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34304*8240/5030	Chlorobenzene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34374*8240/5030	Ethylbenzene	UG/KG-	ND	625
03/01/98	MB*H030198*4	45510*8240/5030	Xylenes (total)	UG/KG-	ND	625
03/01/98	MB*H030198*4	75192*8240/5030	Styrene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34290*8240/5030	Bromoform	UG/KG-	ND	625
03/01/98	MB*H030198*4	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34421*8240/5030	Chloromethane	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34416*8240/5030	Bromomethane	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34314*8240/5030	Chloroethane	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	625
03/02/98	MB*H030298*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	625
03/02/98	MB*H030298*1	75059*8240/5030	Acetone	UG/KG-	782	1250
03/02/98	MB*H030298*1	34426*8240/5030	Methylene Chloride	UG/KG-	80.3	625
03/02/98	MB*H030298*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	625
03/02/98	MB*H030298*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	625
03/02/98	MB*H030298*1	75078*8240/5030	2-Butanone	UG/KG-	391	1250
03/02/98	MB*H030298*1	34318*8240/5030	Chloroform	UG/KG-	ND	625
03/02/98	MB*H030298*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	625
03/02/98	MB*H030298*1	34237*8240/5030	Benzene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34487*8240/5030	Trichloroethene	UG/KG-	97.6	625
03/02/98	MB*H030298*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	625
03/02/98	MB*H030298*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34483*8240/5030	Toluene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34478*8240/5030	Tetrachloroethene	UG/KG-	295	625
03/02/98	MB*H030298*1	75166*8240/5030	2-Hexanone	UG/KG-	271	1250
03/02/98	MB*H030298*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	625
03/02/98	MB*H030298*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	625
03/02/98	MB*H030298*1	75192*8240/5030	Styrene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34290*8240/5030	Bromoform	UG/KG-	ND	625
03/02/98	MB*H030298*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	625

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/16/98	SPM1*26653*11	34504	1,1-Dichloroethene	UG/KG-	0.0	64.5	90.2	139.8	59-172		
02/16/98	SPM1*26653*11	34237	Benzene	UG/KG-	0.0	64.5	84.4	130.9	66-142		
02/16/98	SPM1*26653*11	34487	Trichloroethene	UG/KG-	0.0	64.5	69.3	107.4	62-137		
02/16/98	SPM1*26653*11	34483	Toluene	UG/KG-	0.0	64.5	86.1	133.5	59-139		

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Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/16/98	SPM1*26653*11	34304	Chlorobenzene	UG/KG-	0.0	64.5	77.8	120.6	60-133		
02/16/98	SPM2*26653*11	34504	1,1-Dichloroethene	UG/KG-	0.0	64.5	91.5	141.9	59-172	1.40	22
02/16/98	SPM2*26653*11	34237	Benzene	UG/KG-	0.0	64.5	82.8	128.4	66-142	2.00	21
02/16/98	SPM2*26653*11	34487	Trichloroethene	UG/KG-	0.0	64.5	68.0	105.4	62-137	1.90	24
02/16/98	SPM2*26653*11	34483	Toluene	UG/KG-	0.0	64.5	81.4	126.2	59-139	5.60	21
02/16/98	SPM2*26653*11	34304	Chlorobenzene	UG/KG-	0.0	64.5	74.5	115.5	60-133	4.30	21
02/16/98	SPM1*26668*2	34504	1,1-Dichloroethene	UG/KG-	0.0	64.0	89.9	140.5	59-172		
02/16/98	SPM1*26668*2	34237	Benzene	UG/KG-	0.0	64.0	83.6	130.6	66-142		
02/16/98	SPM1*26668*2	34487	Trichloroethene	UG/KG-	0.0	64.0	68.9	107.7	62-137		
02/16/98	SPM1*26668*2	34483	Toluene	UG/KG-	0.0	64.0	83.1	129.8	59-139		
02/16/98	SPM1*26668*2	34304	Chlorobenzene	UG/KG-	0.0	64.0	73.3	114.5	60-133		
02/16/98	SPM2*26668*2	34504	1,1-Dichloroethene	UG/KG-	0.0	64.0	88.9	138.9	59-172	1.10	22
02/16/98	SPM2*26668*2	34237	Benzene	UG/KG-	0.0	64.0	88.5	138.3	66-142	5.70	21
02/16/98	SPM2*26668*2	34487	Trichloroethene	UG/KG-	0.0	64.0	73.3	114.5	62-137	6.10	24
02/16/98	SPM2*26668*2	34483	Toluene	UG/KG-	0.0	64.0	83.3	130.2	59-139	0.20	21
02/16/98	SPM2*26668*2	34304	Chlorobenzene	UG/KG-	0.0	64.0	76.0	118.8	60-133	3.60	21
02/20/98	SPM1*26688*2	34504	1,1-Dichloroethene	UG/KG-	0.0	63.6	87.5	137.6	59-172		
02/20/98	**SPM1*26688*2**	**34237**	**Benzene**	**UG/KG-**	**0.0**	**63.6**	**91.1**	**143.2**	**66-142**		
02/20/98	SPM1*26688*2	34487	Trichloroethene	UG/KG-	1.38	63.6	74.4	117.0	62-137		
02/20/98	SPM1*26688*2	34483	Toluene	UG/KG-	0.0	63.6	86.0	135.2	59-139		
02/20/98	SPM1*26688*2	34304	Chlorobenzene	UG/KG-	0.0	63.6	78.9	124.1	60-133		
02/20/98	SPM2*26688*2	34504	1,1-Dichloroethene	UG/KG-	0.0	63.6	83.3	131.0	59-172	5.00	22
02/20/98	SPM2*26688*2	34237	Benzene	UG/KG-	0.0	63.6	84.5	132.9	66-142	7.50	21
02/20/98	SPM2*26688*2	34487	Trichloroethene	UG/KG-	1.38	63.6	71.7	112.7	62-137	3.80	24
02/20/98	SPM2*26688*2	34483	Toluene	UG/KG-	0.0	63.6	80.7	126.9	59-139	6.30	21
02/20/98	SPM2*26688*2	34304	Chlorobenzene	UG/KG-	0.0	63.6	74.2	116.7	60-133	6.20	21

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/19/98	DA*26682*2	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	54	110	70-121
02/19/98	DA*26682*2	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	51	100	81-121
02/19/98	DA*26682*2	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	54	110	74-121
02/19/98	SPM1*26682*2	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	54	110	70-121
02/19/98	SPM1*26682*2	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	52	100	81-121
02/19/98	SPM1*26682*2	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	54	110	74-121
02/19/98	SPM2*26682*2	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	56	110	70-121
02/19/98	SPM2*26682*2	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	52	100	81-121
02/19/98	SPM2*26682*2	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	52	100	74-121
02/19/98	DA*26682*3	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	56	110	70-121
02/19/98	DA*26682*3	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	53	110	81-121
02/19/98	DA*26682*3	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	53	110	74-121
02/19/98	DA*26682*4	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	58	120	70-121
02/19/98	DA*26682*4	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	54	110	81-121
02/19/98	DA*26682*4	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	51	100	74-121
02/19/98	DA*26682*5	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	56	110	70-121
02/19/98	DA*26682*5	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	58	120	81-121
02/19/98	DA*26682*5	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	47	94	74-121
02/19/98	DA*26682*6	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	57	110	70-121
02/19/98	DA*26682*6	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	54	110	81-121
02/19/98	DA*26682*6	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	51	100	74-121
02/19/98	DA*26682*7	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	58	120	70-121
02/19/98	DA*26682*7	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	54	110	81-121
02/19/98	DA*26682*7	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	50	100	74-121
02/19/98	DA*26682*8	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	56	110	70-121
02/19/98	DA*26682*8	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	55	110	81-121
02/19/98	DA*26682*8	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	48	96	74-121
02/19/98	DA*26682*9	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	62	120	70-121
02/19/98	DA*26682*9	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	56	110	81-121
02/19/98	DA*26682*9	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	53	110	74-121

KATALYST BATCH : P41047

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P41047 Analysis Date: 03/02/98 Analyst: TROY AVERY Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	34237*8240/5030
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X		
Surrogate present?	X		
Surrogate within acceptance criteria?		X	98813*SUR 98811*SUR 98403*SUR

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40839
NALYSIS : OA-1

QC TYPE : FDER/SW
ANALYST : DANA FRANKLIN
EXTRACTOR :
DATA ENTRY : DANA FRANKLIN

REPORT DATE/TIME : 03/09/98 11:34
ANALYSIS DATE/TIME : 02/09/98
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
OA-1 SOILS BTEX DATA

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*8	S17B5 5.5'-7'	02/09/98	12:47PM
DA*26682*9	S17B6 9.5'-11'	02/09/98	01:36PM

KATALYST BATCH : P40839

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/09/98	MB*MEOH2*1	34031*OA1	Benzene	UG/KG	ND	0.09
02/09/98	MB*MEOH2*1	34011*OA1	Toluene	UG/KG	ND	0.05
02/09/98	MB*MEOH2*1	81552*OA1	Xylenes, Total	UG/KG	ND	0.2
02/09/98	MB*MEOH2*1	34372*OA1	Ethylbenzene	UG/KG	ND	0.07
02/09/98	MB*MEOH2*1	97235*OA1	m-and/or p-Xylene	UG/KG	ND	0.1
02/09/98	MB*MEOH2*1	99420*OA1	o-Xylene	UG/KG	ND	0.07

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/09/98	SPM2*26653*11	34031	Benzene	UG/KG	220	2500	780	31	42-146		

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/09/98	DA*26682*8	96100*SUR	AAA TRIFLUOROTOLUENE	UG/L	3750	2390	64	53-126
02/09/98	DA*26682*9	96100*SUR	AAA TRIFLUOROTOLUENE	UG/L	3750	1380	37	53-126

KATALYST BATCH : P40839

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40839 Analysis Date: 02/09/98 Analyst: DANA FRANKLIN Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
Sample retention times within window?	X		
Sample relative retention times within window?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	34031*OA1
Sample matrix spike duplicate present?		X	
Sample matrix spike duplicate within acceptance criteria?			
Surrogate present?	X		
Surrogate within acceptance criteria?		X	96100*SUR

BATCH OVERRIDE BY: TROY AVERY 1006

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40823
ANALYSIS : OA-1/5030

QC TYPE : FDER/SW
ANALYST : DANA FRANKLIN
EXTRACTOR :
DATA ENTRY : DANA FRANKLIN

REPORT DATE/TIME : 03/09/98 11:34
ANALYSIS DATE/TIME : 02/07/98
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
OA-1 SOILS

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
5682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*8	S17B5 5.5'-7'	02/07/98	06:51PM
DA*26682*9	S17B6 9.5'-11'	02/07/98	07:16PM

KATALYST BATCH : P40823

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/07/98	LCS*GAS*1	97471*OA1	Gasoline Range Organics	UG/KG-	500	490	98	50-150

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
2/07/98	MB*MEOH*1	97471*OA1	Gasoline Range Organics	UG/KG-	4600	8900

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
2/07/98	SPM1*26653*11	97471	Gasoline Range Organics	UG/KG-	93000	63000	67000	106	50-150		

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
2/07/98	DA*26682*8	96100*SUR	AAA TRIFLUOROTOLUENE	UG/L	3750	2160	58	53-126
2/07/98	DA*26682*9	96100*SUR	AAA TRIFLUOROTOLUENE	UG/L	3750	1100	29	53-126

KATALYST BATCH : P40823

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40823 Analysis Date: 02/07/98 Analyst: DANA FRANKLIN Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
Sample retention times within window?	X		
Sample relative retention times within window?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?	X		
Sample matrix spike duplicate present?		X	
Sample matrix spike duplicate within acceptance criteria?			
Surrogate present?	X		
Surrogate within acceptance criteria?		X	96100*SUR

BATCH OVERRIDE BY: TROY AVERY 1006

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40879
NALYSIS : OA-2

C TYPE : FDER/SW
ANALYST :
XTRACTOR :
ATA ENTRY :

REPORT DATE/TIME : 03/09/98 11:34
ANALYSIS DATE/TIME : 02/13/98
EXTRACT DATE :

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

ATCH NOTES
OA2/SOIL

IELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
6682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
A*26682*8	S17B5 5.5'-7'	02/13/98	05:15PM
A*26682*9	S17B6 9.5'-11'	02/13/98	06:02PM

KATALYST BATCH : P40879

aboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
2/13/98	LCS*3574*1	97472*OA2	Total Extractable Hydrocarbons	MG/KG-	33.3	34.2	102.7	50-150

ethod Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
2/12/98	MB*3574*1	97472*OA2	Total Extractable Hydrocarbons	MG/KG-	0.867	10.00

KATALYST BATCH : P40879

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40879 Analysis Date: 02/13/98 Analyst: Report Date: 03/09/98

	Yes	No
Are ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
Extraction holding time within criteria?	X	
Sample retention times within window?	X	
LCS present?	X	
LCS within acceptance criteria?	X	
Method blank present?	X	
Method blank within acceptance criteria?	X	
Sample matrix spike present?		X
Sample matrix spike within acceptance criteria?		

BATCH OVERRIDE BY: TROY AVERY 1006

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40885
NALYSIS : SW6010

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
ATA ENTRY : ICP UPLOAD

REPORT DATE/TIME : 03/09/98 11:34
ANALYSIS DATE/TIME : 02/12/98
EXTRACT DATE : 02/11/98

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

AMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*10	S17MW1	02/12/98	06:15PM

KATALYST BATCH : P40885

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/12/98	CCB*980212*1	1042*6010/3010	Copper,total	UG/L	6.2
02/12/98	CCB*980212*1	1051*6010/3010	Lead,total	UG/L	17.4
02/12/98	CCB*980212*1	1007*6010/3010	Barium,total	UG/L	1.9
02/12/98	CCB*980212*1	1027*6010/3010	Cadmium,total	UG/L	1.8
02/12/98	CCB*980212*1	1034*6010/3010	Chromium,total	UG/L	9.7
02/12/98	CCB*980212*1	1077*6010/3010	Silver,total	UG/L	6.4
02/12/98	CCB*980212*1	1045*6010/3010	Iron,total	UG/L	4.3
02/12/98	CCB*980212*2	1042*6010/3010	Copper,total	UG/L	3.1
02/12/98	CCB*980212*2	1051*6010/3010	Lead,total	UG/L	8.4
02/12/98	CCB*980212*2	1007*6010/3010	Barium,total	UG/L	ND
02/12/98	CCB*980212*2	1027*6010/3010	Cadmium,total	UG/L	1.1
02/12/98	CCB*980212*2	1034*6010/3010	Chromium,total	UG/L	0.8
02/12/98	CCB*980212*2	1077*6010/3010	Silver,total	UG/L	ND
02/12/98	CCB*980212*2	1045*6010/3010	Iron,total	UG/L	ND
02/12/98	CCB*980212*3	1042*6010/3010	Copper,total	UG/L	ND
02/12/98	CCB*980212*3	1051*6010/3010	Lead,total	UG/L	ND
02/12/98	CCB*980212*3	1007*6010/3010	Barium,total	UG/L	ND
02/12/98	CCB*980212*3	1027*6010/3010	Cadmium,total	UG/L	3.9
02/12/98	CCB*980212*3	1034*6010/3010	Chromium,total	UG/L	ND
02/12/98	CCB*980212*3	1077*6010/3010	Silver,total	UG/L	0.5
02/12/98	CCB*980212*3	1045*6010/3010	Iron,total	UG/L	ND
02/12/98	CCB*980212*4	1042*6010/3010	Copper,total	UG/L	ND
02/12/98	CCB*980212*4	1051*6010/3010	Lead,total	UG/L	5.4
02/12/98	CCB*980212*4	1007*6010/3010	Barium,total	UG/L	ND
02/12/98	CCB*980212*4	1027*6010/3010	Cadmium,total	UG/L	0.1
02/12/98	CCB*980212*4	1034*6010/3010	Chromium,total	UG/L	1.8
02/12/98	CCB*980212*4	1077*6010/3010	Silver,total	UG/L	0.6
02/12/98	CCB*980212*4	1045*6010/3010	Iron,total	UG/L	0.8

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	CCV*980212*1	1042*6010/3010	Copper,total	UG/L	4000	3920	98.0	90-110
02/12/98	CCV*980212*1	1051*6010/3010	Lead,total	UG/L	4000	3750	93.8	90-110
02/12/98	CCV*980212*1	1007*6010/3010	Barium,total	UG/L	4000	3890	97.3	90-110
02/12/98	CCV*980212*1	1027*6010/3010	Cadmium,total	UG/L	4000	3910	97.8	90-110
02/12/98	CCV*980212*1	1034*6010/3010	Chromium,total	UG/L	4000	3810	95.3	90-110
02/12/98	CCV*980212*1	1077*6010/3010	Silver,total	UG/L	400	375	93.8	90-110
02/12/98	CCV*980212*1	1045*6010/3010	Iron,total	UG/L	4000	4100	103	90-110
02/12/98	CCV*980212*2	1042*6010/3010	Copper,total	UG/L	4000	3880	97.0	90-110
02/12/98	CCV*980212*2	1051*6010/3010	Lead,total	UG/L	4000	3720	93.0	90-110
02/12/98	CCV*980212*2	1007*6010/3010	Barium,total	UG/L	4000	3840	96.0	90-110
02/12/98	CCV*980212*2	1027*6010/3010	Cadmium,total	UG/L	4000	3870	96.8	90-110
02/12/98	CCV*980212*2	1034*6010/3010	Chromium,total	UG/L	4000	3780	94.5	90-110
02/12/98	CCV*980212*2	1077*6010/3010	Silver,total	UG/L	400	372	93.0	90-110
02/12/98	CCV*980212*2	1045*6010/3010	Iron,total	UG/L	4000	4050	101	90-110
02/12/98	CCV*980212*3	1042*6010/3010	Copper,total	UG/L	4000	3890	97.3	90-110
02/12/98	CCV*980212*3	1051*6010/3010	Lead,total	UG/L	4000	3730	93.3	90-110
02/12/98	CCV*980212*3	1007*6010/3010	Barium,total	UG/L	4000	3860	96.5	90-110
02/12/98	CCV*980212*3	1027*6010/3010	Cadmium,total	UG/L	4000	3890	97.3	90-110
02/12/98	CCV*980212*3	1034*6010/3010	Chromium,total	UG/L	4000	3780	94.5	90-110
02/12/98	CCV*980212*3	1077*6010/3010	Silver,total	UG/L	400	372	93.0	90-110
02/12/98	CCV*980212*3	1045*6010/3010	Iron,total	UG/L	4000	4060	102	90-110
02/12/98	CCV*980212*4	1042*6010/3010	Copper,total	UG/L	4000	3910	97.8	90-110
02/12/98	CCV*980212*4	1051*6010/3010	Lead,total	UG/L	4000	3730	93.3	90-110
02/12/98	CCV*980212*4	1007*6010/3010	Barium,total	UG/L	4000	3880	97.0	90-110
02/12/98	CCV*980212*4	1027*6010/3010	Cadmium,total	UG/L	4000	3890	97.3	90-110
02/12/98	CCV*980212*4	1034*6010/3010	Chromium,total	UG/L	4000	3800	95.0	90-110
02/12/98	CCV*980212*4	1077*6010/3010	Silver,total	UG/L	400	372	93.0	90-110
02/12/98	CCV*980212*4	1045*6010/3010	Iron,total	UG/L	4000	4060	102	90-110

Interference Check Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	ICS*A*1	1045*6010/3010	Iron,total	UG/L	200000	184000	92.0	80-120
02/12/98	ICS*AB*1	1042*6010/3010	Copper,total	UG/L	500	470	94.0	80-120
02/12/98	ICS*AB*1	1051*6010/3010	Lead,total	UG/L	1000	878	87.8	80-120
02/12/98	ICS*AB*1	1007*6010/3010	Barium,total	UG/L	500	467	93.4	80-120
02/12/98	ICS*AB*1	1027*6010/3010	Cadmium,total	UG/L	1000	871	87.1	80-120
02/12/98	ICS*AB*1	1034*6010/3010	Chromium,total	UG/L	500	456	91.2	80-120
02/12/98	ICS*AB*1	1077*6010/3010	Silver,total	UG/L	1000	928	92.8	80-120
02/12/98	ICS*AB*1	1045*6010/3010	Iron,total	UG/L	200000	189000	94.5	80-120
02/12/98	ICS*A*2	1045*6010/3010	Iron,total	UG/L	200000	183000	91.5	80-120

KATALYST BATCH : P40885

Interference Check Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	ICS*AB*2	1042*6010/3010	Copper,total	UG/L	500	457	91.4	80-120
02/12/98	ICS*AB*2	1051*6010/3010	Lead,total	UG/L	1000	872	87.2	80-120
02/12/98	ICS*AB*2	1007*6010/3010	Barium,total	UG/L	500	457	91.4	80-120
02/12/98	ICS*AB*2	1027*6010/3010	Cadmium,total	UG/L	1000	868	86.8	80-120
02/12/98	ICS*AB*2	1034*6010/3010	Chromium,total	UG/L	500	448	89.6	80-120
02/12/98	ICS*AB*2	1077*6010/3010	Silver,total	UG/L	1000	909	90.9	80-120
02/12/98	ICS*AB*2	1045*6010/3010	Iron,total	UG/L	200000	186000	93.0	80-120

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	ICV*980212*1	1042*6010/3010	Copper,total	UG/L	6000	6050	101	90-110
02/12/98	ICV*980212*1	1051*6010/3010	Lead,total	UG/L	6000	5730	95.5	90-110
02/12/98	ICV*980212*1	1007*6010/3010	Barium,total	UG/L	6000	6040	101	90-110
02/12/98	ICV*980212*1	1027*6010/3010	Cadmium,total	UG/L	6000	5970	99.5	90-110
02/12/98	ICV*980212*1	1034*6010/3010	Chromium,total	UG/L	6000	5840	97.3	90-110
02/12/98	ICV*980212*1	1077*6010/3010	Silver,total	UG/L	600	574	95.7	90-110
02/12/98	ICV*980212*1	1045*6010/3010	Iron,total	UG/L	6000	6290	105	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	LCS*98MP27071*1	1042*6010/3010	Copper,total	UG/L	5000	4770	95.4	80-120
02/12/98	LCS*98MP27071*1	1051*6010/3010	Lead,total	UG/L	5000	4550	91.0	80-120
02/12/98	LCS*98MP27071*1	1007*6010/3010	Barium,total	UG/L	5000	4740	94.8	80-120
02/12/98	LCS*98MP27071*1	1027*6010/3010	Cadmium,total	UG/L	5000	4730	94.6	80-120
02/12/98	LCS*98MP27071*1	1034*6010/3010	Chromium,total	UG/L	5000	4630	92.6	80-120
02/12/98	LCS*98MP27071*1	1077*6010/3010	Silver,total	UG/L	500	452	90.4	80-120
02/12/98	LCS*98MP27071*1	1045*6010/3010	Iron,total	UG/L	5000	4980	99.6	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/12/98	MB*98MP27071*1	1042*6010/3010	Copper,total	UG/L	9.3	10.0
02/12/98	MB*98MP27071*1	1051*6010/3010	Lead,total	UG/L	1.8	50.0
02/12/98	MB*98MP27071*1	1007*6010/3010	Barium,total	UG/L	0.5	10.0
02/12/98	MB*98MP27071*1	1027*6010/3010	Cadmium,total	UG/L	2.1	5.0
02/12/98	MB*98MP27071*1	1034*6010/3010	Chromium,total	UG/L	2.2	10.0
02/12/98	MB*98MP27071*1	1077*6010/3010	Silver,total	UG/L	2.8	10.0
02/12/98	MB*98MP27071*1	1045*6010/3010	Iron,total	UG/L	28.0	100.0

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER*	CRIT
02/12/98	RP*26682*10	1007*6010/3010	Barium,total	UG/L	435	434	0.2		20
02/12/98	RP*26682*10	1027*6010/3010	Cadmium,total	UG/L	<5.0	<5.0			20
02/12/98	RP*26682*10	1034*6010/3010	Chromium,total	UG/L	<10.0	20.6			20
02/12/98	RP*26682*10	1077*6010/3010	Silver,total	UG/L	<10.0	<10.0			20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/12/98	SPM1*26682*10	1042	Copper,total	UG/L	11.4	5000	4640	92.8	75-125		
02/12/98	SPM1*26682*10	1051	Lead,total	UG/L	11.1	5000	4260	85.2	75-125		
02/12/98	SPM1*26682*10	1007	Barium,total	UG/L	435	5000	4630	92.6	75-125		
02/12/98	SPM1*26682*10	1027	Cadmium,total	UG/L	3.2	5000	4410	88.2	75-125		
02/12/98	SPM1*26682*10	1034	Chromium,total	UG/L	9.3	5000	4380	87.6	75-125		
02/12/98	SPM1*26682*10	1077	Silver,total	UG/L	1.2	500	442	88.4	54-125		
02/12/98	SPM1*26682*10	1045	Iron,total	UG/L	4270	5000	5120	102.4	75-125		
02/12/98	SPM2*26682*10	1042	Copper,total	UG/L	11.4	5000	4400	88.0	75-125	5.3	20
02/12/98	SPM2*26682*10	1051	Lead,total	UG/L	11.1	5000	4130	82.6	75-125	3.1	20
02/12/98	SPM2*26682*10	1007	Barium,total	UG/L	435	5000	4380	87.6	75-125	5.6	20
02/12/98	SPM2*26682*10	1027	Cadmium,total	UG/L	3.2	5000	4260	85.2	75-125	3.5	20
02/12/98	SPM2*26682*10	1034	Chromium,total	UG/L	9.3	5000	4190	83.8	75-125	4.4	20
02/12/98	SPM2*26682*10	1077	Silver,total	UG/L	1.2	500	433	86.6	54-125	2.1	20
02/12/98	SPM2*26682*10	1045	Iron,total	UG/L	4270	5000	4640	92.8	75-125	9.8	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	SPX*26682*10	1042*6010/3010	Copper,total	UG/L	5000	4900	98.0	75-125
02/12/98	SPX*26682*10	1051*6010/3010	Lead,total	UG/L	5000	4550	91.0	75-125
02/12/98	SPX*26682*10	1007*6010/3010	Barium,total	UG/L	5000	4940	98.8	75-125

KATALYST BATCH : P40885

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	SPX*26682*10	1027*6010/3010	Cadmium,total	UG/L	5000	4700	94.0	75-125
02/12/98	SPX*26682*10	1034*6010/3010	Chromium,total	UG/L	5000	4670	93.4	75-125
02/12/98	SPX*26682*10	1077*6010/3010	Silver,total	UG/L	500	464	92.8	75-125
02/12/98	SPX*26682*10	1045*6010/3010	Iron,total	UG/L	5000	5490	109.8	75-125

KATALYST BATCH : P40885

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40885 Analysis Date: 02/12/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
re ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CB present?	X		
CB within acceptance criteria?	X		
CCV present?	X		
CV within acceptance criteria?	X		
ICS present?	X		
ICS within acceptance criteria?	X		
CV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
CS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
ample replicate present?	X		
ample replicate within acceptance criteria?		X	1042*6010/3010 1034*6010/3010
ample matrix spike present?	X		
ample matrix spike within acceptance criteria?	X		
Sample matrix spike duplicate present?	X		
ample matrix spike duplicate within acceptance criteria?	X		
nalytical spike present?	X		
Analytical spike within acceptance criteria?	X		

ATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40904
ANALYSIS : SW7421

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 11:35
ANALYSIS DATE/TIME : 02/16/98
EXTRACT DATE : 02/11/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*10	S17MW1	02/12/98	04:46PM

KATALYST BATCH : P40904

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
2/12/98	CCB*980212PB*1	1051*7421/3020	Lead,total	UG/L	ND
2/12/98	CCB*980212PB*2	1051*7421/3020	Lead,total	UG/L	0.8
02/16/98	CCB*980216PB*1	1051*7421/3020	Lead,total	UG/L	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	CCV*980212PB*1	1051*7421/3020	Lead,total	UG/L	20.0	20.2	101	90-110
02/12/98	CCV*980212PB*2	1051*7421/3020	Lead,total	UG/L	20.0	21.1	106	90-110
2/16/98	CCV*980216PB*1	1051*7421/3020	Lead,total	UG/L	20.0	21.5	108	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
2/12/98	ICV*980212PB*1	1051*7421/3020	Lead,total	UG/L	30.0	31.5	105	90-110
2/16/98	ICV*980216PB*1	1051*7421/3020	Lead,total	UG/L	30.0	31.1	104	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/12/98	LCS*98MP27070*1	1051*7421/3020	Lead,total	UG/L	20.0	20.4	102.0	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/12/98	MB*98MP27070*1	1051*7421/3020	Lead,total	UG/L	0.08	3.0

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/12/98	**RP*26682*10**	**1051*7421/3020**	**Lead,total**	**UG/L**	**4.2**	**3.1**	**30.1**		**20**

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/12/98	SPM1*26682*10	1051	Lead,total	UG/L	4.2	20.0	17.5	87.5	75-125		
2/12/98	SPM2*26682*10	1051	Lead,total	UG/L	4.2	20.0	17.3	86.5	75-125	1.1	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
2/12/98	SPX*26682*10	1051*7421/3020	Lead,total	UG/L	20.0	19.3	96.5	85-115
2/16/98	SPX*26668*13	1051*7421/3020	Lead,total	UG/L	100.0	95.4	95.4	85-115

KATALYST BATCH : P40904

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40904 Analysis Date: 02/16/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCB present?	X		
CCB within acceptance criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample replicate present?	X		
Sample replicate within acceptance criteria?		X	1051*7421/3020
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?	X		
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X		
Analytical spike present?	X		
Analytical spike within acceptance criteria?	X		

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40903
ANALYSIS : SW7060

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 11:35
ANALYSIS DATE/TIME : 02/16/98
EXTRACT DATE : 02/12/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*10	S17MW1	02/13/98	07:57PM

KATALYST BATCH : P40903

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/13/98	CCB*980213AS*1	1002*7060	Arsenic,total	UG/L	ND
02/13/98	CCB*980213AS*2	1002*7060	Arsenic,total	UG/L	0.9
02/13/98	CCB*980213AS*3	1002*7060	Arsenic,total	UG/L	1.5
02/13/98	CCB*980213AS*4	1002*7060	Arsenic,total	UG/L	ND
02/16/98	CCB*980216AS*1	1002*7060	Arsenic,total	UG/L	ND
02/16/98	CCB*980216AS*2	1002*7060	Arsenic,total	UG/L	0.2
02/16/98	CCB*980216AS*3	1002*7060	Arsenic,total	UG/L	0.2
02/16/98	CCB*980216AS*4	1002*7060	Arsenic,total	UG/L	0.5
02/16/98	CCB*980216AS*5	1002*7060	Arsenic,total	UG/L	0.6

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/13/98	CCV*980213AS*1	1002*7060	Arsenic,total	UG/L	20.0	20.9	105	90-110
02/13/98	CCV*980213AS*2	1002*7060	Arsenic,total	UG/L	20.0	20.7	104	90-110
02/13/98	CCV*980213AS*3	1002*7060	Arsenic,total	UG/L	20.0	20.0	100.0	90-110
02/13/98	CCV*980213AS*4	1002*7060	Arsenic,total	UG/L	20.0	20.3	102	90-110
02/16/98	CCV*980216AS*1	1002*7060	Arsenic,total	UG/L	20.0	20.9	105	90-110
02/16/98	CCV*980216AS*2	1002*7060	Arsenic,total	UG/L	20.0	19.6	98.0	90-110
02/16/98	CCV*980216AS*3	1002*7060	Arsenic,total	UG/L	20.0	19.4	97.0	90-110
02/16/98	CCV*980216AS*4	1002*7060	Arsenic,total	UG/L	20.0	19.9	99.5	90-110
02/16/98	CCV*980216AS*5	1002*7060	Arsenic,total	UG/L	20.0	19.8	99.0	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/13/98	ICV*980213AS*1	1002*7060	Arsenic,total	UG/L	30.0	31.9	106	90-110
02/16/98	ICV*980216AS*1	1002*7060	Arsenic,total	UG/L	30.0	30.6	102	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/13/98	LCS*98MP27078*1	1002*7060	Arsenic,total	UG/L	20.0	20.2	101.0	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/13/98	MB*98MP27078*1	1002*7060	Arsenic,total	UG/L	0.3	2.0

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/13/98	SPX*26682*10	1002*7060	Arsenic,total	UG/L	20.0	21.8	109.0	85-115
02/13/98	SPX*26692*1	1002*7060	Arsenic,total	UG/L	20.0	19.6	98.0	85-115
02/13/98	SPX*26692*2	1002*7060	Arsenic,total	UG/L	20.0	22.5	112.5	85-115
02/13/98	**SPX*26692*3**	**1002*7060**	**Arsenic,total**	**UG/L**	**20.0**	**23.3**	**116.5**	**85-115**
02/13/98	SPX*26692*4	1002*7060	Arsenic,total	UG/L	20.0	21.9	109.5	85-115
02/13/98	SPX*26692*6	1002*7060	Arsenic,total	UG/L	20.0	20.3	101.5	85-115
02/13/98	SPX*26692*7	1002*7060	Arsenic,total	UG/L	20.0	20.4	102.0	85-115
02/16/98	SPX*26692*5	1002*7060	Arsenic,total	UG/L	40.0	43.1	107.8	85-115
02/16/98	SPX*26692*8	1002*7060	Arsenic,total	UG/L	20.0	22.2	111.0	85-115
02/16/98	**SPX*26692*9**	**1002*7060**	**Arsenic,total**	**UG/L**	**20.0**	**23.5**	**117.5**	**85-115**

KATALYST BATCH : P40903

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40903 Analysis Date: 02/16/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CB present?	X		
CB within acceptance criteria?	X		
CCV present?	X		
CV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
CS present?	X		
CS within acceptance criteria?	X		
Method blank present?	X		
ethod blank within acceptance criteria?	X		
Sample replicate present?		X	
Sample replicate within acceptance criteria?			
ample matrix spike present?		X	
ample matrix spike within acceptance criteria?			
Analytical spike present?	X		
nalytical spike within acceptance criteria?		X	1002*7060

ATCH OVERRIDE BY: MIKE TRAVIS 1003

INALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40927
ANALYSIS : SW7740

QC TYPE : FDER/SW
ANALYST : JON BUERCK
EXTRACTOR : TOM FERRELL
DATA ENTRY : GFAA UPLOAD

REPORT DATE/TIME : 03/09/98 11:36
ANALYSIS DATE/TIME : 02/16/98
EXTRACT DATE : 02/12/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26682*10	S17MW1	02/16/98	08:31PM
RP*26693*1	DA or RPn not found!		

KATALYST BATCH : P40927

Continuing Calibration Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND
02/16/98	CCB*980216SE*1	1147*7740	Selenium,total	UG/L	ND
02/16/98	CCB*980216SE*2	1147*7740	Selenium,total	UG/L	ND
02/16/98	CCB*980216SE*3	1147*7740	Selenium,total	UG/L	ND

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	CCV*980216SE*1	1147*7740	Selenium,total	UG/L	20.0	19.3	96.5	90-110
02/16/98	CCV*980216SE*2	1147*7740	Selenium,total	UG/L	20.0	18.5	92.5	90-110
02/16/98	CCV*980216SE*3	1147*7740	Selenium,total	UG/L	20.0	18.5	92.5	90-110

Initial Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	ICV*980216SE*1	1147*7740	Selenium,total	UG/L	30.0	31.1	104	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	LCS*98MP27078*1	1147*7740	Selenium,total	UG/L	20.0	19.4	97.0	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/16/98	MB*98MP27078*1	1147*7740	Selenium,total	UG/L	ND	5.0

Replicate Analysis Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	REP #1	REP #2	RPD	RER	CRIT
02/16/98	RP*26693*1	1147*7740	Selenium,total	UG/L	<5.0	9.6			20

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/16/98	SPM1*26693*1	1147	Selenium,total	UG/L	2.4	20.0	23.9	119.5	75-125		
02/16/98	SPM2*26693*1	1147	Selenium,total	UG/L	2.4	20.0	21.5	107.5	75-125	11.8	20

Spike into Matrix Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	SPX*26682*10	1147*7740	Selenium,total	UG/L	20.0	21.8	109.0	85-115

KATALYST BATCH : P40927

Katalyst Analytical Technologies, Inc.

Computer QC Checks

Batch No.: P40927 Analysis Date: 02/16/98 Analyst: JON BUERCK Report Date: 03/09/98

	Yes	No
Are ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
CCB present?	X	
CCB within acceptance criteria?	X	
CCV present?	X	
CCV within acceptance criteria?	X	
ICV present?	X	
ICV within acceptance criteria?	X	
LCS present?	X	
LCS within acceptance criteria?	X	
Method blank present?	X	
Method blank within acceptance criteria?	X	
Sample replicate present?	X	
Sample replicate within acceptance criteria?	X	
Sample matrix spike present?	X	
Sample matrix spike within acceptance criteria?	X	
Sample matrix spike duplicate present?	X	
Sample matrix spike duplicate within acceptance criteria?	X	
Analytical spike present?	X	
Analytical spike within acceptance criteria?	X	

BATCH OVERRIDE BY:

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P41038
NALYSIS : 8240

QC TYPE : FDER/SW
ANALYST : TROY AVERY
EXTRACTOR :
ATA ENTRY : GCMS UPLOAD

REPORT DATE/TIME : 03/09/98 11:36
ANALYSIS DATE/TIME : 03/01/98
EXTRACT DATE :

STATUS : FINAL

ETHOD BLANK CORRECTION METHOD : NONE

ATCH NOTES
8240 WATERS

IELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
6682	BATCH	110S01 5100	QST ST. LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
A*26682*10	S17MW1	02/17/98	07:26PM
A*26682*10	S17MW1	03/01/98	08:18PM

KATALYST BATCH : P41038

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	LCS*I021798*1	34501*8240/5030	1,1-Dichloroethene	UG/L	50.0	56.6	113.2	61-145
02/17/98	LCS*I021798*1	34030*8240/5030	Benzene	UG/L	50.0	54.1	108.2	76-127
02/17/98	LCS*I021798*1	39180*8240/5030	Trichloroethene	UG/L	50.0	52.8	105.6	71-120
02/17/98	LCS*I021798*1	34010*8240/5030	Toluene	UG/L	50.0	54.3	108.6	76-125
02/17/98	LCS*I021798*1	34301*8240/5030	Chlorobenzene	UG/L	50.0	51.7	103.4	75-130
02/20/98	LCS*I022098*1	34501*8240/5030	1,1-Dichloroethene	UG/L	50.0	58.6	117.2	61-145
02/20/98	LCS*I022098*1	34030*8240/5030	Benzene	UG/L	50.0	53.6	107.2	76-127
02/20/98	LCS*I022098*1	39180*8240/5030	Trichloroethene	UG/L	50.0	51.2	102.4	71-120
02/20/98	LCS*I022098*1	34010*8240/5030	Toluene	UG/L	50.0	51.6	103.2	76-125
02/20/98	LCS*I022098*1	34301*8240/5030	Chlorobenzene	UG/L	50.0	49.8	99.6	75-130
03/01/98	LCS*H030198*2	34501*8240/5030	1,1-Dichloroethene	UG/L	50.0	59.0	118.0	61-145
03/01/98	LCS*H030198*2	34030*8240/5030	Benzene	UG/L	50.0	55.3	110.6	76-127
03/01/98	LCS*H030198*2	39180*8240/5030	Trichloroethene	UG/L	50.0	55.6	111.2	71-120
03/01/98	LCS*H030198*2	34010*8240/5030	Toluene	UG/L	50.0	52.4	104.8	76-125
03/01/98	LCS*H030198*2	34301*8240/5030	Chlorobenzene	UG/L	50.0	54.0	108.0	75-130

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/17/98	MB*I021798*1	34418*8240/5030	Chloromethane	UG/L	ND	10.00
02/17/98	MB*I021798*1	39175*8240/5030	Vinyl Chloride	UG/L	ND	10.00
02/17/98	MB*I021798*1	34413*8240/5030	Bromomethane	UG/L	ND	10.00
02/17/98	MB*I021798*1	34311*8240/5030	Chloroethane	UG/L	ND	10.00
02/17/98	MB*I021798*1	34501*8240/5030	1,1-Dichloroethene	UG/L	ND	5.00
02/17/98	MB*I021798*1	77041*8240/5030	Carbon Disulfide	UG/L	ND	5.00
02/17/98	MB*I021798*1	81552*8240/5030	Acetone	UG/L	ND	10.00
02/17/98	MB*I021798*1	34423*8240/5030	Methylene Chloride	UG/L	ND	5.00
02/17/98	MB*I021798*1	34546*8240/5030	trans-1,2-dichloroethene	UG/L	ND	5.00
02/17/98	MB*I021798*1	34496*8240/5030	1,1-Dichloroethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	77057*8240/5030	Vinyl Acetate	UG/L	ND	5.00
02/17/98	MB*I021798*1	77093*8240/5030	cis-1,2-Dichloroethene	UG/L	ND	5.00
02/17/98	MB*I021798*1	81595*8240/5030	2-Butanone	UG/L	ND	10.00
02/17/98	MB*I021798*1	32106*8240/5030	Chloroform	UG/L	ND	5.00
02/17/98	MB*I021798*1	34506*8240/5030	1,1,1-Trichloroethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	32102*8240/5030	Carbon Tetrachloride	UG/L	ND	5.00
02/17/98	MB*I021798*1	34030*8240/5030	Benzene	UG/L	ND	5.00
02/17/98	MB*I021798*1	34531*8240/5030	1,2-Dichloroethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	39180*8240/5030	Trichloroethene	UG/L	0.55	5.00
02/17/98	MB*I021798*1	34541*8240/5030	1,2-Dichloropropane	UG/L	ND	5.00
02/17/98	MB*I021798*1	32101*8240/5030	Bromodichloromethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	34704*8240/5030	cis-1,3-Dichloropropene	UG/L	ND	5.00
02/17/98	MB*I021798*1	81596*8240/5030	4-Methyl-2-pentanone	UG/L	ND	10.00
02/17/98	MB*I021798*1	34010*8240/5030	Toluene	UG/L	ND	5.00
02/17/98	MB*I021798*1	34699*8240/5030	trans-1,3-Dichloropropene	UG/L	ND	5.00
02/17/98	MB*I021798*1	34511*8240/5030	1,1,2-Trichloroethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	34475*8240/5030	Tetrachloroethene	UG/L	0.65	5.00
02/17/98	MB*I021798*1	77103*8240/5030	2-Hexanone	UG/L	ND	10.00
02/17/98	MB*I021798*1	32105*8240/5030	Dibromochloromethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	34301*8240/5030	Chlorobenzene	UG/L	ND	5.00
02/17/98	MB*I021798*1	34371*8240/5030	Ethylbenzene	UG/L	ND	5.00
02/17/98	MB*I021798*1	81551*8240/5030	Xylenes (total)	UG/L	ND	5.00
02/17/98	MB*I021798*1	77128*8240/5030	Styrene	UG/L	ND	5.00
02/17/98	MB*I021798*1	32104*8240/5030	Bromoform	UG/L	ND	5.00
02/17/98	MB*I021798*1	34516*8240/5030	1,1,2,2-Tetrachloroethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	34418*8240/5030	Chloromethane	UG/L	ND	10.00
02/20/98	MB*I022098*1	39175*8240/5030	Vinyl Chloride	UG/L	ND	10.00
02/20/98	MB*I022098*1	34413*8240/5030	Bromomethane	UG/L	ND	10.00
02/20/98	MB*I022098*1	34311*8240/5030	Chloroethane	UG/L	ND	10.00
02/20/98	MB*I022098*1	34501*8240/5030	1,1-Dichloroethene	UG/L	ND	5.00
02/20/98	MB*I022098*1	77041*8240/5030	Carbon Disulfide	UG/L	ND	5.00
02/20/98	MB*I022098*1	81552*8240/5030	Acetone	UG/L	ND	10.00
02/20/98	MB*I022098*1	34423*8240/5030	Methylene Chloride	UG/L	ND	5.00
02/20/98	MB*I022098*1	34546*8240/5030	trans-1,2-dichloroethene	UG/L	ND	5.00
02/20/98	MB*I022098*1	34496*8240/5030	1,1-Dichloroethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	77057*8240/5030	Vinyl Acetate	UG/L	ND	5.00
02/20/98	MB*I022098*1	77093*8240/5030	cis-1,2-Dichloroethene	UG/L	ND	5.00
02/20/98	MB*I022098*1	81595*8240/5030	2-Butanone	UG/L	3.99	10.00
02/20/98	MB*I022098*1	32106*8240/5030	Chloroform	UG/L	ND	5.00
02/20/98	MB*I022098*1	34506*8240/5030	1,1,1-Trichloroethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	32102*8240/5030	Carbon Tetrachloride	UG/L	ND	5.00
02/20/98	MB*I022098*1	34030*8240/5030	Benzene	UG/L	ND	5.00
02/20/98	MB*I022098*1	34531*8240/5030	1,2-Dichloroethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	39180*8240/5030	Trichloroethene	UG/L	0.52	5.00

KATALYST BATCH : P41038

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/20/98	MB*I022098*1	34541*8240/5030	1,2-Dichloropropane	UG/L	ND	5.00
02/20/98	MB*I022098*1	32101*8240/5030	Bromodichloromethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	34704*8240/5030	cis-1,3-Dichloropropene	UG/L	ND	5.00
02/20/98	MB*I022098*1	81596*8240/5030	4-Methyl-2-pentanone	UG/L	ND	10.00
02/20/98	MB*I022098*1	34010*8240/5030	Toluene	UG/L	ND	5.00
02/20/98	MB*I022098*1	34699*8240/5030	trans-1,3-Dichloropropene	UG/L	ND	5.00
02/20/98	MB*I022098*1	34511*8240/5030	1,1,2-Trichloroethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	34475*8240/5030	Tetrachloroethene	UG/L	1.85	5.00
02/20/98	MB*I022098*1	77103*8240/5030	2-Hexanone	UG/L	3.85	10.00
02/20/98	MB*I022098*1	32105*8240/5030	Dibromochloromethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	34301*8240/5030	Chlorobenzene	UG/L	ND	5.00
02/20/98	MB*I022098*1	34371*8240/5030	Ethylbenzene	UG/L	ND	5.00
02/20/98	MB*I022098*1	81551*8240/5030	Xylenes (total)	UG/L	ND	5.00
02/20/98	MB*I022098*1	77128*8240/5030	Styrene	UG/L	ND	5.00
02/20/98	MB*I022098*1	32104*8240/5030	Bromoform	UG/L	ND	5.00
02/20/98	MB*I022098*1	34516*8240/5030	1,1,2,2-Tetrachloroethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	34418*8240/5030	Chloromethane	UG/L	ND	10.00
03/01/98	MB*H030198*3	39175*8240/5030	Vinyl Chloride	UG/L	ND	10.00
03/01/98	MB*H030198*3	34413*8240/5030	Bromomethane	UG/L	ND	10.00
03/01/98	MB*H030198*3	34311*8240/5030	Chloroethane	UG/L	ND	10.00
03/01/98	MB*H030198*3	34501*8240/5030	1,1-Dichloroethene	UG/L	ND	5.00
03/01/98	MB*H030198*3	77041*8240/5030	Carbon Disulfide	UG/L	ND	5.00
03/01/98	MB*H030198*3	81552*8240/5030	Acetone	UG/L	ND	10.00
03/01/98	MB*H030198*3	34423*8240/5030	Methylene Chloride	UG/L	0.89	5.00
03/01/98	MB*H030198*3	34546*8240/5030	trans-1,2-dichloroethene	UG/L	ND	5.00
03/01/98	MB*H030198*3	34496*8240/5030	1,1-Dichloroethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	77057*8240/5030	Vinyl Acetate	UG/L	ND	5.00
03/01/98	MB*H030198*3	77093*8240/5030	cis-1,2-Dichloroethene	UG/L	ND	5.00
03/01/98	MB*H030198*3	81595*8240/5030	2-Butanone	UG/L	2.30	10.00
03/01/98	MB*H030198*3	32106*8240/5030	Chloroform	UG/L	ND	5.00
03/01/98	MB*H030198*3	34506*8240/5030	1,1,1-Trichloroethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	32102*8240/5030	Carbon Tetrachloride	UG/L	ND	5.00
03/01/98	MB*H030198*3	34030*8240/5030	Benzene	UG/L	ND	5.00
03/01/98	MB*H030198*3	34531*8240/5030	1,2-Dichloroethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	39180*8240/5030	Trichloroethene	UG/L	0.67	5.00
03/01/98	MB*H030198*3	34541*8240/5030	1,2-Dichloropropane	UG/L	ND	5.00
03/01/98	MB*H030198*3	32101*8240/5030	Bromodichloromethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	34704*8240/5030	cis-1,3-Dichloropropene	UG/L	ND	5.00
03/01/98	MB*H030198*3	81596*8240/5030	4-Methyl-2-pentanone	UG/L	ND	10.00
03/01/98	MB*H030198*3	34010*8240/5030	Toluene	UG/L	ND	5.00
03/01/98	MB*H030198*3	34699*8240/5030	trans-1,3-Dichloropropene	UG/L	ND	5.00
03/01/98	MB*H030198*3	34511*8240/5030	1,1,2-Trichloroethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	34475*8240/5030	Tetrachloroethene	UG/L	0.97	5.00
03/01/98	MB*H030198*3	77103*8240/5030	2-Hexanone	UG/L	2.42	10.00
03/01/98	MB*H030198*3	32105*8240/5030	Dibromochloromethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	34301*8240/5030	Chlorobenzene	UG/L	ND	5.00
03/01/98	MB*H030198*3	34371*8240/5030	Ethylbenzene	UG/L	ND	5.00
03/01/98	MB*H030198*3	81551*8240/5030	Xylenes (total)	UG/L	ND	5.00
03/01/98	MB*H030198*3	77128*8240/5030	Styrene	UG/L	ND	5.00
03/01/98	MB*H030198*3	32104*8240/5030	Bromoform	UG/L	ND	5.00
03/01/98	MB*H030198*3	34516*8240/5030	1,1,2,2-Tetrachloroethane	UG/L	ND	5.00

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/17/98	SPM1*26682*10	34501	1,1-Dichloroethene	UG/L	177	50.0	39.0	78.0	61-145		
02/17/98	SPM1*26682*10	34030	Benzene	UG/L	21.3	50.0	50.8	101.6	76-127		
02/17/98	**SPM1*26682*10**	**39180**	**Trichloroethene**	**UG/L**	**4500**	**50.0**	**-290**	**-580**	**71-120**		
02/17/98	**SPM1*26682*10**	**34010**	**Toluene**	**UG/L**	**1210**	**50.0**	**-30.0**	**-60.0**	**76-125**		
02/17/98	SPM1*26682*10	34301	Chlorobenzene	UG/L	0.0	50.0	50.9	101.8	75-130		
02/17/98	SPM2*26682*10	34501	1,1-Dichloroethene	UG/L	177	50.0	43.0	86.0	61-145	9.80	14
02/17/98	SPM2*26682*10	34030	Benzene	UG/L	21.3	50.0	54.5	109.0	76-127	7.00	11
02/17/98	**SPM2*26682*10**	**39180**	**Trichloroethene**	**UG/L**	**4500**	**50.0**	**-270**	**-540**	**71-120**		
02/17/98	**SPM2*26682*10**	**34010**	**Toluene**	**UG/L**	**1210**	**50.0**	**-40.0**	**-80.0**	**76-125**		
02/17/98	SPM2*26682*10	34301	Chlorobenzene	UG/L	0.0	50.0	53.7	107.4	75-130	5.40	13

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	DA*26682*10	98812*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/L	50	52	100	76-114
02/17/98	DA*26682*10	98810*SUR	TOLUENE-D8 (SW846)	UG/L	50	53	110	76-149
02/17/98	DA*26682*10	28941*SUR	4-BROMOFLUOROBENZENE	UG/L	50	49	98	73-118
02/17/98	SPM1*26682*10	98812*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/L	50	53	110	76-114

KATALYST BATCH : P41038

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	SPM1*26682*10	98810*SUR	TOLUENE-D8 (SW846)	UG/L	50	53	110	76-149
02/17/98	SPM1*26682*10	28941*SUR	4-BROMOFLUOROBENZENE	UG/L	50	49	98	73-118
02/17/98	SPM2*26682*10	98812*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/L	50	53	110	76-114
02/17/98	SPM2*26682*10	98810*SUR	TOLUENE-D8 (SW846)	UG/L	50	53	110	76-149
02/17/98	SPM2*26682*10	28941*SUR	4-BROMOFLUOROBENZENE	UG/L	50	48	96	73-118
03/01/98	DA*26682*10*D	98812*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/L	50	51	100	76-114
03/01/98	DA*26682*10*D	98810*SUR	TOLUENE-D8 (SW846)	UG/L	50	45	90	76-149
03/01/98	DA*26682*10*D	28941*SUR	4-BROMOFLUOROBENZENE	UG/L	50	50	100	73-118

KATALYST BATCH : P41038

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P41038 Analysis Date: 03/01/98 Analyst: TROY AVERY Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	39180*8240/5030 34010*8240/5030
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?		X	39180*8240/5030 34010*8240/5030
Surrogate present?	X		
Surrogate within acceptance criteria?		X	28941*SUR

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

CHAIN OF CUSTODY DOCUMENTATION

Environmental
Science &
Engineering, Inc.
A GILCORP Company
11665 Lilburn Park Road, St. Louis, MO 63146-3535
Telephone: (314) 567-4600 -- Fax: (314) 567-5030

0043

FOR LAB USE ONLY
Project Number: _____

Chain of Custody Record

Client: QST
Address: 11665 Lilburn Park Rd
St. Louis, MO 63146
Phone #: 314 567-4600 Fax #: ( ) -
P.O. #:
Client Contact: Scott George
Project # / Location: Boeing

Sample Type:
1. Water
2. Soil
3. Sludge
4. Oil
5. Tissue
Other : _____

Container Type:
P - Plastic
G - Glass
V - VOC

Preservative:
1. None 4. NaOH
2. H2SO4 5. HCl
3. HNO3

Sample I.D. (10 Characters ONLY)	Sample Type	Container Size	Container Type	Container No.	Sampling Date	Sampling Time	Preservative	Lab I.D.	Analyses: VOCs	Metals	Filter Metals	pH	Specific Conductivity	Temperature	Comments
S21MW1	Water	1qt	P	1	2-5-98	1035		26682 *1			X				Other fractions already sent
S31B16.2-7'	Soil	8oz 4oz	G	2	2-5-98	0830		*2	X	X					
S31B18-8.5'	↓	↓	↓	↓	↓	0835		*3	X	X					
S31B25.2-6'						0905		*4	X	X					
S31B27.5-8.5'						0910		*5	X	X					
S31B31.5-2.5'						0925		*6	X	X					
S31B36.5-8.5'						0945		*7	X	X					
S17B55.5-7'						1340		*8	X	X					
S17B69.5-11'						1440		*9	X	X					
S17MW1	Water	2-VOC 1-qt	G P	4	2-5-98			*10	X	X	X				

Relinquished By:	Date: 2-5-98	Received By:	Date: -- --
Scott George	Time: 18:00		Time: :
Relinquished By:	Date: -- --	Received For Lab By:	Date: 2-6-98
	Time: :		Time: 8:45

FOR LAB USE ONLY
Samples Received Chilled
☐ Yes ☐ No _____ °C

SPECIAL INSTRUCTIONS:

Copies: White - Client Canary - Lab Receiving Pink - Lab File Goldenrod - Retained by Sampler

Environmental Science & Engineering, Inc.
11665 Lilburn Park Road, St. Louis, MO 63146-3535
Telephone: (314) 567-4600 -- Fax: (314) 567-3030

FOR LAB USE ONLY
Project Number: _____

Chain of Custody Record

Client: QST
Address: 11665 Lilburn Park Rd
St. Louis, MO 63146
Phone #: 314 567-4600 Fax #: ( ) -
P.O. #:
Client Contact: Scott George
Project # / Location: Boeing

Sample Type: 1. Water 2. Soil 3. Sludge 4. Oil 5. Tissue Other: _____
Container Type: P - Plastic G - Glass V - VOC
Preservative: 1. None 2. H_2SO_4 4. NaOH 5. HCl 3. HNO_3

Sample I.D. (10 Characters ONLY)	Sample Type	Container Size	Container Type	Container No.	Sampling Date	Sampling Time	Preservative	Lab I.D.	VOCs	Metals	Filter Metals	PAHs (added by SEG 2-12-98)	pH	Specific Conductivity	Temperature	Comments
S21MW1	Water	1 qt	P	1	2-5-98	1035			X		X					Other fraction already sent
S31B16.2-7'	Soil	8oz 4oz	G	2	2-5-98	0830										
S31B18-8.5'	↓	↓	↓	↓	↓	0835										
S31B25.2-6'						0905										
S31B27.5-8.5'						0910										
S31B31.5-2.5						0925										
S31B36.5-8.5'						0945										
S17B55.5-7'						1340										
S17B69.5-11'						1440										
S17MW1	Water	2-VOC 1-3L	G P	4	2-5-98				X		X					Add PAHs

Relinquished By:	Date: 2-5-98	Received By:	C
Scott George	Time: 18:00		T
Relinquished By:	Date: -- --	Received For Lab By:	C
	Time: :		T.

SPECIAL INSTRUCTIONS:

Post-it® Fax Note 7671 | Date 2-12-98 | # of pages ▶ 1
To Dan Moore | From Scott George
Co./Dept. Katalyst | Co. QST
Phone # | Phone #
Fax # 309-692-5232 | Fax #

°C
Noted by Sampler

KATALYST

ANALYTICAL TECHNOLOGIES, INC.

March 17, 1998

Mr. Scott George
QST Environmental
11665 Lilburn Park Road
St. Louis, MO 63146

Dear Mr. George,

Katalyst Analytical Technologies, Inc., appreciates the opportunity to provide the attached report of analyses for Katalyst sample delivery group #26688, received 02/09/98 by our laboratory. This deliverable includes case narrative, tabulated results, QC summary, dates report and chain of custody documentation.

Should you have any questions regarding this data, please contact me at (309) 589-8004.

Sincerely,

KATALYST ANALYTICAL TECHNOLOGIES, INC.

Dan Moore
Project Manager

Attachments

8901 N. Industrial Road • Suite 100 • Peoria, IL 61615-1581 • Phone: (309) 589-8000 • Fax: (309) 692-5232 • www.katalyst1.com

KATALYST
ANALYTICAL TECHNOLOGIES, INC.

CASE NARRATIVE/VALIDATION REPORT

QST Environmental / Boeing
Fg# 26688

Katalyst Analytical Technologies, Inc., received 6 soil and 3 water samples on 2/7/98 on ice and in good condition. The sample set was designated as one sample delivery batch, 26688 for Volatile Organics and Cyanide analyses.

LAB NO.	CLIENT ID	DATE COLLECTED	DATE RECEIVED
26688*1	S17B7 3.5'-4.5'	2/4/98	2/5/98
26688*2	S17B7 7.5-'-8.5'	2/4/98	2/5/98
26688*3	S17B7 28'-30'	2/4/98	2/5/98
26688*4	S17B2 3'-4.5'	2/4/98	2/5/98
26688*5	S17B2 11'-12.5'	2/4/98	2/5/98
26688*6	S17B3 10.5'-11.5'	2/4/98	2/5/98
26688*7	S17B4 6'-7'	2/4/98	2/5/98
26688*8	S17B4 11.5'-13.5'	2/4/98	2/5/98
26688*9	S17B1 2.5'-4'D	2/4/98	2/5/98

Volatile Organics (8240) Project Summary:

The samples were analyzed on 02/17/98, 02/20/98, and 03/02/98 within the method specified hold-times except for dilution analyses of samples 26688*1DL and *7DL. Samples 26688*1DL and *7DL were analyzed for cis-1,2-dichloroethene and tetrachloroethane.

Volatile Organics (8240) QC Summary:

All holding time criteria were met, except were noted above.

The laboratory method blank did not contain any analytes of interest above the reporting limit.

GC/MS tuning ion abundance criteria for Bromofluorbenzene (BFB) was within the established control limits.

All initial and continuing calibration standards met the criteria of the method except for the following: on 02/17/98, trans-1,2-dichlorothene and, on 02/20/98, chloroform in the continuing calibration verification standard. All samples associated with these CCVs did not contain trans-1,2-dichloroeethene or chloroform. Identification of these analytes is unaffected by these outliers. Therefore, the data is unaffected as reported.

Volatile Organics (8240) QC Summary (Cont.):

The surrogate spike recoveries were within method specified limits except for the following: Bromofluorbenzene in samples 26688*1, *8, and *1D and 1,2-dichloroethane-d4 in samples 26688 *2, *2MS. *2MSD, *4, and *6. High surrogate recoveries were verified through subsequent re-analysis to verify matrix contribution or interference.

All spike recoveries in the laboratory control sample were within method specified limits.

The associated matrix spike and duplicate were performed on sample 26688*2 and 26668*10. The matrix spike and duplicate recoveries were within method specified limits except for benzene in 26688*2MS and trichloroethene and toluene in 26688*1MS & MSD. The benzene recovery was only 1.2% above method specified limits for sample 26688*2MS. Additionally, the amount of trichloroethene and toluene spiked in 26688*10MS/MSD is insignificant compared to the amount found in the associated sample. The laboratory control sample verifies method and instrument performance.

A review of the data indicated that the retention times and mass spectra of the sample analytes are in agreeement with the calibration standards.

Cyanide Project Summary:

These samples were analyzed within method holding-times.

Cyanide Chemistry QC Summary:

All holding time criteria were met.

All laboratory method blanks did not contain any target analytes of interest.

All initial and continuing calibration standards met the criteria of the method

The spike recoveries in the standard matrix spikes were within method specified limits.

There was insufficient sample provided to perform a matrix spike and duplicate with this analysis. The laboratory control sample verifies method performance.

Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Signature: _____ Name: Daniel J. Moore

Date June 11, 1998 Title: Project Manager

Signature: _____ Name: Michael Travis

Date June 11, 1998 Title: QA Manager

ANALYTICAL RESULTS

PROJECT NUMBER 110S01 5100 PROJECT NAME QST ST.LOUIS/BOEING
FIELD GROUP LAB COORDINATOR Daniel Moore

CLIENT SAMPLE ID'S:			S17B7 3.5'-4.5'	S17B7 3.5'-4.5'DL	S17B7 7.5'-8.5'
FIELD GROUP:			26688	26688	26688
SEQUENCE #:			1	1 DL	2
DATE COLLECTED:			02/06/98	02/06/98	02/06/98
TIME COLLECTED:			08:20	08:20	08:30
PARAMETERS	UNITS	METHOD			
Moisture	%	E160.3	23.8	NA	21.4
Acetone	UG/KG-DRY	SW8240	68	NA	35
Benzene	UG/KG-DRY	SW8240	<6.6	NA	<6.4
Bromodichloromethane	UG/KG-DRY	SW8240	<6.6	NA	<6.4
Bromoform	UG/KG-DRY	SW8240	<6.6	NA	<6.4
Bromomethane	UG/KG-DRY	SW8240	<13	NA	<13
2-Butanone	UG/KG-DRY	SW8240	82	NA	52
Carbon Disulfide	UG/KG-DRY	SW8240	<6.6	NA	<6.4
Carbon Tetrachloride	UG/KG-DRY	SW8240	<6.6	NA	<6.4
Chlorobenzene	UG/KG-DRY	SW8240	<6.6	NA	<6.4
Chloroethane	UG/KG-DRY	SW8240	<13	NA	<13
Chloroform	UG/KG-DRY	SW8240	<6.6	NA	<6.4
Chloromethane	UG/KG-DRY	SW8240	<13	NA	<13
Dibromochloromethane	UG/KG-DRY	SW8240	<6.6	NA	<6.4
1,1-Dichloroethane	UG/KG-DRY	SW8240	<6.6	NA	<6.4
1,2-Dichloroethane	UG/KG-DRY	SW8240	<6.6	NA	<6.4
1,1-Dichloroethene	UG/KG-DRY	SW8240	<6.6	NA	<6.4
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.6	NA	<6.4
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.6	NA	<6.4
1,2-Dichloropropane	UG/KG-DRY	SW8240	<6.6	NA	<6.4
cis-1,3-Dichloropropene	UG/KG-DRY	SW8240	<6.6	NA	<6.4
trans-1,3-Dichloropropene	UG/KG-DRY	SW8240	<6.6	NA	<6.4
Ethylbenzene	UG/KG-DRY	SW8240	13	NA	<6.4
2-Hexanone	UG/KG-DRY	SW8240	<13	NA	<13
4-Methyl-2-pentanone	UG/KG-DRY	SW8240	<13	NA	<13
Methylene Chloride	UG/KG-DRY	SW8240	6.7	NA	6.5
Styrene	UG/KG-DRY	SW8240	<6.6	NA	<6.4
1,1,2,2-Tetrachloroethane	UG/KG-DRY	SW8240	<6.6	NA	<6.4
Tetrachloroethene	UG/KG-DRY	SW8240	4600E	4200X	9.7

DL - Dilution
E - Exceeded Calibration Range
X - Please see case narrative

CLIENT SAMPLE ID'S:			S17B7 3.5'-4.5'	S17B7 3.5'-4.5'DL	S17B7 7.5'-8.5'
FIELD GROUP:			26688	26688	26688
SEQUENCE #:			1	1 DL	2
DATE COLLECTED:			02/06/98	02/06/98	02/06/98
TIME COLLECTED:			08:20	08:20	08:30
PARAMETERS	UNITS	METHOD			
Toluene	UG/KG-DRY	SW8240	20	NA	<6.4
1,1,1-Trichloroethane	UG/KG-DRY	SW8240	<6.6	NA	<6.4
1,1,2-Trichloroethane	UG/KG-DRY	SW8240	<6.6	NA	<6.4
Trichloroethene	UG/KG-DRY	SW8240	44	NA	<6.4
Vinyl Acetate	UG/KG-DRY	SW8240	<6.6	NA	<6.4
Vinyl Chloride	UG/KG-DRY	SW8240	<13	NA	<13
Xylenes (total)	UG/KG-DRY	SW8240	<6.6	NA	<6.4

DL - Dilution

CLIENT SAMPLE ID'S:			S17B7 31.5'-32.5'	S17B8 6'-7'
FIELD GROUP:			26688	26688
SEQUENCE #:			4	5
DATE COLLECTED:			02/06/98	02/06/98
TIME COLLECTED:			10:45	13:10
PARAMETERS	UNITS	METHOD		
Moisture	%	E160.3	23.6	21.0
Acetone	UG/KG-DRY	SW8240	50	30
Benzene	UG/KG-DRY	SW8240	<6.5	<6.3
Bromodichloromethane	UG/KG-DRY	SW8240	<6.5	<6.3
Bromoform	UG/KG-DRY	SW8240	<6.5	<6.3
Bromomethane	UG/KG-DRY	SW8240	<13	<13
2-Butanone	UG/KG-DRY	SW8240	49	52
Carbon Disulfide	UG/KG-DRY	SW8240	<6.5	<6.3
Carbon Tetrachloride	UG/KG-DRY	SW8240	<6.5	<6.3
Chlorobenzene	UG/KG-DRY	SW8240	<6.5	<6.3
Chloroethane	UG/KG-DRY	SW8240	<13	<13
Chloroform	UG/KG-DRY	SW8240	<6.5	<6.3
Chloromethane	UG/KG-DRY	SW8240	<13	<13
Dibromochloromethane	UG/KG-DRY	SW8240	<6.5	<6.3
1,1-Dichloroethane	UG/KG-DRY	SW8240	<6.5	<6.3
1,2-Dichloroethane	UG/KG-DRY	SW8240	<6.5	<6.3
1,1-Dichloroethene	UG/KG-DRY	SW8240	<6.5	<6.3
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.5	<6.3
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.5	<6.3
1,2-Dichloropropane	UG/KG-DRY	SW8240	<6.5	<6.3
cis-1,3-Dichloropropene	UG/KG-DRY	SW8240	<6.5	<6.3
trans-1,3-Dichloropropene	UG/KG-DRY	SW8240	<6.5	<6.3
Ethylbenzene	UG/KG-DRY	SW8240	<6.5	<6.3
2-Hexanone	UG/KG-DRY	SW8240	<13	<13
4-Methyl-2-pentanone	UG/KG-DRY	SW8240	<13	<13
Methylene Chloride	UG/KG-DRY	SW8240	6.9	6.7
Styrene	UG/KG-DRY	SW8240	<6.5	<6.3
1,1,2,2-Tetrachloroethane	UG/KG-DRY	SW8240	<6.5	<6.3
Tetrachloroethene	UG/KG-DRY	SW8240	7.7	12

CLIENT SAMPLE ID'S:			S17B7 31.5'-32.5'	S17B8 6'-7'
FIELD GROUP:			26688	26688
SEQUENCE #:			4	5
DATE COLLECTED:			02/06/98	02/06/98
TIME COLLECTED:			10:45	13:10
PARAMETERS	UNITS	METHOD		
Toluene	UG/KG-DRY	SW8240	<6.5	<6.3
1,1,1-Trichloroethane	UG/KG-DRY	SW8240	<6.5	<6.3
1,1,2-Trichloroethane	UG/KG-DRY	SW8240	<6.5	<6.3
Trichloroethene	UG/KG-DRY	SW8240	<6.5	<6.3
Vinyl Acetate	UG/KG-DRY	SW8240	<6.5	<6.3
Vinyl Chloride	UG/KG-DRY	SW8240	<13	<13
Xylenes (total)	UG/KG-DRY	SW8240	<6.5	<6.3

CLIENT SAMPLE ID'S:	S17B8 11.5'-12.5'
FIELD GROUP:	26688
SEQUENCE #:	6
DATE COLLECTED:	02/06/98
TIME COLLECTED:	13:20

PARAMETERS	UNITS	METHOD	
Moisture	%	E160.3	20.5
Acetone	UG/KG-DRY	SW8240	25
Benzene	UG/KG-DRY	SW8240	<6.3
Bromodichloromethane	UG/KG-DRY	SW8240	<6.3
Bromoform	UG/KG-DRY	SW8240	<6.3
Bromomethane	UG/KG-DRY	SW8240	<13
2-Butanone	UG/KG-DRY	SW8240	58
Carbon Disulfide	UG/KG-DRY	SW8240	<6.3
Carbon Tetrachloride	UG/KG-DRY	SW8240	<6.3
Chlorobenzene	UG/KG-DRY	SW8240	<6.3
Chloroethane	UG/KG-DRY	SW8240	<13
Chloroform	UG/KG-DRY	SW8240	<6.3
Chloromethane	UG/KG-DRY	SW8240	<13
Dibromochloromethane	UG/KG-DRY	SW8240	<6.3
1,1-Dichloroethane	UG/KG-DRY	SW8240	<6.3
1,2-Dichloroethane	UG/KG-DRY	SW8240	<6.3
1,1-Dichloroethene	UG/KG-DRY	SW8240	<6.3
cis-1,2-Dichloroethene	UG/KG-DRY	SW8240	10
trans-1,2-Dichloroethene	UG/KG-DRY	SW8240	<6.3
1,2-Dichloropropane	UG/KG-DRY	SW8240	<6.3
cis-1,3-Dichloropropene	UG/KG-DRY	SW8240	<6.3
trans-1,3-Dichloropropene	UG/KG-DRY	SW8240	<6.3
Ethylbenzene	UG/KG-DRY	SW8240	<6.3
2-Hexanone	UG/KG-DRY	SW8240	<13
4-Methyl-2-pentanone	UG/KG-DRY	SW8240	<13
Methylene Chloride	UG/KG-DRY	SW8240	<6.3
Styrene	UG/KG-DRY	SW8240	<6.3
1,1,2,2-Tetrachloroethane	UG/KG-DRY	SW8240	<6.3
Tetrachloroethene	UG/KG-DRY	SW8240	58

CLIENT SAMPLE ID'S:	S17B8 11.5'-12.5'
FIELD GROUP:	26688
SEQUENCE #:	6
DATE COLLECTED:	02/06/98
TIME COLLECTED:	13:20

PARAMETERS	UNITS	METHOD	
Toluene	UG/KG-DRY	SW8240	<6.3
1,1,1-Trichloroethane	UG/KG-DRY	SW8240	<6.3
1,1,2-Trichloroethane	UG/KG-DRY	SW8240	<6.3
Trichloroethene	UG/KG-DRY	SW8240	<6.3
Vinyl Acetate	UG/KG-DRY	SW8240	<6.3
Vinyl Chloride	UG/KG-DRY	SW8240	<13
Xylenes (total)	UG/KG-DRY	SW8240	<6.3

CLIENT SAMPLE ID'S:			S17 MW2	S17 MW2DL
FIELD GROUP:			26688	26688
SEQUENCE #:			7	7 DL
DATE COLLECTED:			02/06/98	02/06/98
TIME COLLECTED:			13:50	13:50
PARAMETERS	UNITS	METHOD		
Acetone	UG/L	SW8240	<10	NA
Benzene	UG/L	SW8240	<5.0	NA
Bromodichloromethane	UG/L	SW8240	<5.0	NA
Bromoform	UG/L	SW8240	<5.0	NA
Bromomethane	UG/L	SW8240	<10	NA
2-Butanone	UG/L	SW8240	<10	NA
Carbon Disulfide	UG/L	SW8240	<5.0	NA
Carbon Tetrachloride	UG/L	SW8240	<5.0	NA
Chlorobenzene	UG/L	SW8240	<5.0	NA
Chloroethane	UG/L	SW8240	<10	NA
Chloroform	UG/L	SW8240	<5.0	NA
Chloromethane	UG/L	SW8240	<10	NA
Dibromochloromethane	UG/L	SW8240	<5.0	NA
1,1-Dichloroethane	UG/L	SW8240	<5.0	NA
1,2-Dichloroethane	UG/L	SW8240	<5.0	NA
1,1-Dichloroethene	UG/L	SW8240	15	NA
cis-1,2-Dichloroethene	UG/L	SW8240	3500E	6900X
1,2-Dichloropropane	UG/L	SW8240	<5.0	NA
cis-1,3-Dichloropropene	UG/L	SW8240	<5.0	NA
trans-1,3-Dichloropropene	UG/L	SW8240	<5.0	NA

DL - Dilution
E - Exceeded Calibration Range
X - Please see case narrative

CLIENT SAMPLE ID'S:			S17 MW2	S17 MW2DL
FIELD GROUP:			26688	26688
SEQUENCE #:			7	7 DL
DATE COLLECTED:			02/06/98	02/06/98
TIME COLLECTED:			13:50	13:50
PARAMETERS	UNITS	METHOD		
Ethylbenzene	UG/L	SW8240	<5.0	NA
2-Hexanone	UG/L	SW8240	<10	NA
4-Methyl-2-pentanone	UG/L	SW8240	<10	NA
Methylene Chloride	UG/L	SW8240	<5.0	NA
Styrene	UG/L	SW8240	<5.0	NA
1,1,2,2-Tetrachloroethane	UG/L	SW8240	<5.0	NA
Tetrachloroethene	UG/L	SW8240	10000E	45000X
Toluene	UG/L	SW8240	7.3	NA
1,1,1-Trichloroethane	UG/L	SW8240	<5.0	NA
1,1,2-Trichloroethane	UG/L	SW8240	<5.0	NA
Trichloroethene	UG/L	SW8240	3400E	6000X
Vinyl Acetate	UG/L	SW8240	<5.0	NA
Vinyl Chloride	UG/L	SW8240	<10	NA
Xylenes (total)	UG/L	SW8240	<5.0	NA
trans-1,2-dichloroethene	UG/L	SW8240	30	NA

DL - Dilution
E - Exceeded Calibration Range
X - Please see case narrative

CLIENT SAMPLE ID'S:	S17 MW3
FIELD GROUP:	26688
SEQUENCE #:	8
DATE COLLECTED:	02/06/98
TIME COLLECTED:	15:15

PARAMETERS	UNITS	METHOD	
Acetone	UG/L	SW8240	<10
Benzene	UG/L	SW8240	<5.0
Bromodichloromethane	UG/L	SW8240	<5.0
Bromoform	UG/L	SW8240	<5.0
Bromomethane	UG/L	SW8240	<10
2-Butanone	UG/L	SW8240	<10
Carbon Disulfide	UG/L	SW8240	<5.0
Carbon Tetrachloride	UG/L	SW8240	<5.0
Chlorobenzene	UG/L	SW8240	<5.0
Chloroethane	UG/L	SW8240	<10
Chloroform	UG/L	SW8240	<5.0
Chloromethane	UG/L	SW8240	<10
Dibromochloromethane	UG/L	SW8240	<5.0
1,1-Dichloroethane	UG/L	SW8240	<5.0
1,2-Dichloroethane	UG/L	SW8240	<5.0
1,1-Dichloroethene	UG/L	SW8240	<5.0
cis-1,2-Dichloroethene	UG/L	SW8240	<5.0
1,2-Dichloropropane	UG/L	SW8240	<5.0
cis-1,3-Dichloropropene	UG/L	SW8240	<5.0
trans-1,3-Dichloropropene	UG/L	SW8240	<5.0

CLIENT SAMPLE ID'S:	S17 MW3
FIELD GROUP:	26688
SEQUENCE #:	8
DATE COLLECTED:	02/06/98
TIME COLLECTED:	15:15

PARAMETERS	UNITS	METHOD	
Ethylbenzene	UG/L	SW8240	<5.0
2-Hexanone	UG/L	SW8240	<10
4-Methyl-2-pentanone	UG/L	SW8240	<10
Methylene Chloride	UG/L	SW8240	<5.0
Styrene	UG/L	SW8240	<5.0
1,1,2,2-Tetrachloroethane	UG/L	SW8240	<5.0
Tetrachloroethene	UG/L	SW8240	<5.0
Toluene	UG/L	SW8240	<5.0
1,1,1-Trichloroethane	UG/L	SW8240	<5.0
1,1,2-Trichloroethane	UG/L	SW8240	<5.0
Trichloroethene	UG/L	SW8240	<5.0
Vinyl Acetate	UG/L	SW8240	<5.0
Vinyl Chloride	UG/L	SW8240	<10
Xylenes (total)	UG/L	SW8240	<5.0
trans-1,2-dichloroethene	UG/L	SW8240	<5.0

CLIENT SAMPLE ID'S:	S21 MW1
FIELD GROUP:	26688
SEQUENCE #:	9
DATE COLLECTED:	02/06/98
TIME COLLECTED:	14:45

PARAMETERS	UNITS	METHOD	
Cyanide	MG/L	SW9010	<0.005

Katalyst Analytical Technologies, Inc.
QST ST. LOUIS 26688 DATES REPORT

SAMPLE	STATION ID	COLLECT. TIME	RECEIPT	CLASSIFICATION	LEACHATE	EXTRACTION	DAYS, ACT/HT ANALYSIS	LCH	EXT	ANL	BATCH
26688*1	S17B7 3.5'-4.5'	02/06/98 08:20A	02/09/98	Volatiles	NA	NA	02/20/98 09:03P	NA	NA	14/14	P41047
				MoistureMETHOD	NA	NA	03/02/98 05:30P	NA	NA	24/180	P41052
26688*2	S17B7 7.5'-8.5'	02/06/98 08:30A	02/09/98	Volatiles	NA	NA	02/20/98 09:33P	NA	NA	14/14	P41047
				MoistureMETHOD	NA	NA	03/02/98 05:30P	NA	NA	24/180	P41052
26688*3	S17B7 28'-30'	02/06/98 10:25A	02/09/98	HOLD SAMPLE	NA	NA	05:30P	NA	NA	/NA	
26688*4	S17B7 31.5'-32.5'	02/06/98 10:45A	02/09/98	Volatiles	NA	NA	02/20/98 11:01P	NA	NA	14/14	P41047
				MoistureMETHOD	NA	NA	03/02/98 05:30P	NA	NA	24/180	P41052
26688*5	S17B8 6'-7'	02/06/98 01:10P	02/09/98	Volatiles	NA	NA	02/20/98 11:30P	NA	NA	14/14	P41047
				MoistureMETHOD	NA	NA	03/02/98 05:30P	NA	NA	24/180	P41052
26688*6	S17B8 11.5'-12.5'	02/06/98 01:20P	02/09/98	Volatiles	NA	NA	02/21/98 12:00A	NA	NA	14/14	P41047
				MoistureMETHOD	NA	NA	03/02/98 05:30P	NA	NA	24/180	P41052
26688*7	S17 MW2	02/06/98 01:50P	02/09/98	Volatiles	NA	NA	02/17/98 08:55P	NA	NA	11/14	P41038
26688*8	S17 MW3	02/06/98 03:15P	02/09/98	Volatiles	NA	NA	02/20/98 08:04P	NA	NA	14/14	P41038
26688*9	S21 MW1	02/06/98 02:45P	02/09/98	Cyanide	NA	NA	02/11/98 05:25P	NA	NA	5/14	P40866

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

SAMPLE	SITE ID	ANALYTE	DIL	BATCH
26688*1 DL	S17B7 3.5'-4.5'	Volatiles	125	P41047
26688*7 DL	S17 MW2	Volatiles	500	P41038

QUALITY CONTROL SUMMARY REPORTS BY ANALYTICAL BATCH

KATALYST BATCH : P41047
ANALYSIS : 8240

QC TYPE : FDER/SW
ANALYST : TROY AVERY
EXTRACTOR :
DATA ENTRY : GCMS UPLOAD

REPORT DATE/TIME : 03/09/98 13:19
ANALYSIS DATE/TIME : 03/02/98
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
8240 SOILS

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26688	CLIENT	110S01 5100	QST ST.LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA'26688*1	S17B7 3.5'-4.5'	02/20/98	09:03PM
DA'26688*2	S17B7 7.5'-8.5'	02/20/98	09:33PM
DA'26688*4	S17B7 31.5'-32.	02/20/98	11:01PM
DA'26688*5	S17B8 6'-7'	02/20/98	11:30PM
DA'26688*6	S17B8 11.5'-12.	02/21/98	12:00AM

KATALYST BATCH : P41047

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/16/98	LCS*H021698*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	64.6	129.2	59-172
02/16/98	LCS*H021698*1	34237*8240/5030	Benzene	UG/KG-	50.0	63.9	127.8	66-142
02/16/98	LCS*H021698*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	54.7	109.4	62-137
02/16/98	LCS*H021698*1	34483*8240/5030	Toluene	UG/KG-	50.0	64.6	129.2	59-139
02/16/98	LCS*H021698*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	61.5	123.0	60-133
02/17/98	LCS*H021798*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	66.5	133.0	59-172
02/17/98	LCS*H021798*1	34237*8240/5030	Benzene	UG/KG-	50.0	60.0	120.0	66-142
02/17/98	LCS*H021798*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	50.7	101.4	62-137
02/17/98	LCS*H021798*1	34483*8240/5030	Toluene	UG/KG-	50.0	58.5	117.0	59-139
02/17/98	LCS*H021798*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	54.4	108.8	60-133
02/18/98	LCS*H021898*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	76.3	152.6	59-172
02/18/98	LCS*H021898*1	34237*8240/5030	Benzene	UG/KG-	50.0	65.1	130.2	66-142
02/18/98	LCS*H021898*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	55.0	110.0	62-137
02/18/98	LCS*H021898*1	34483*8240/5030	Toluene	UG/KG-	50.0	62.1	124.2	59-139
02/18/98	LCS*H021898*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	58.0	116.0	60-133
02/19/98	LCS*H021998*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	61.5	123.0	59-172
02/19/98	LCS*H021998*1	34237*8240/5030	Benzene	UG/KG-	50.0	57.4	114.8	66-142
02/19/98	LCS*H021998*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	51.2	102.4	62-137
02/19/98	LCS*H021998*1	34483*8240/5030	Toluene	UG/KG-	50.0	53.9	107.8	59-139
02/19/98	LCS*H021998*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	54.2	108.4	60-133
02/20/98	LCS*H022098*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	65.0	130.0	59-172
02/20/98	LCS*H022098*1	34237*8240/5030	Benzene	UG/KG-	50.0	56.3	112.6	66-142
02/20/98	LCS*H022098*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	47.9	95.8	62-137
02/20/98	LCS*H022098*1	34483*8240/5030	Toluene	UG/KG-	50.0	50.5	101.0	59-139
02/20/98	LCS*H022098*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	50.0	100.0	60-133
03/01/98	LCS*H030198*3	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	57.5	115.0	59-172
03/01/98	LCS*H030198*3	34237*8240/5030	Benzene	UG/KG-	50.0	54.3	108.6	66-142
03/01/98	LCS*H030198*3	34487*8240/5030	Trichloroethene	UG/KG-	50.0	54.3	108.6	62-137
03/01/98	LCS*H030198*3	34483*8240/5030	Toluene	UG/KG-	50.0	54.1	108.2	59-139
03/01/98	LCS*H030198*3	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	55.0	110.0	60-133
03/02/98	LCS*H030298*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	50.0	59.7	119.4	59-172
03/02/98	LCS*H030298*1	34237*8240/5030	Benzene	UG/KG-	50.0	56.1	112.2	66-142
03/02/98	LCS*H030298*1	34487*8240/5030	Trichloroethene	UG/KG-	50.0	57.1	114.2	62-137
03/02/98	LCS*H030298*1	34483*8240/5030	Toluene	UG/KG-	50.0	56.2	112.4	59-139
03/02/98	LCS*H030298*1	34304*8240/5030	Chlorobenzene	UG/KG-	50.0	57.6	115.2	60-133

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/16/98	MB*H021698*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75059*8240/5030	Acetone	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34426*8240/5030	Methylene Chloride	UG/KG-	1.43	5.00
02/16/98	MB*H021698*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75078*8240/5030	2-Butanone	UG/KG-	2.28	10.00
02/16/98	MB*H021698*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34478*8240/5030	Tetrachloroethene	UG/KG-	0.57	5.00
02/16/98	MB*H021698*1	75166*8240/5030	2-Hexanone	UG/KG-	ND	10.00
02/16/98	MB*H021698*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/16/98	MB*H021698*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00

KATALYST BATCH : P41047

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/16/98	MB*H021698*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75059*8240/5030	Acetone	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34426*8240/5030	Methylene Chloride	UG/KG-	1.28	5.00
02/17/98	MB*H021798*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75078*8240/5030	2-Butanone	UG/KG-	4.00	10.00
02/17/98	MB*H021798*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/17/98	MB*H021798*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34478*8240/5030	Tetrachloroethene	UG/KG-	0.67	5.00
02/17/98	MB*H021798*1	75166*8240/5030	2-Hexanone	UG/KG-	0.91	10.00
02/17/98	MB*H021798*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/17/98	MB*H021798*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75059*8240/5030	Acetone	UG/KG-	5.77	10.00
02/18/98	MB*H021898*1	34426*8240/5030	Methylene Chloride	UG/KG-	0.53	5.00
02/18/98	MB*H021898*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75078*8240/5030	2-Butanone	UG/KG-	2.26	10.00
02/18/98	MB*H021898*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
02/18/98	MB*H021898*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34478*8240/5030	Tetrachloroethene	UG/KG-	2.82	5.00
02/18/98	MB*H021898*1	75166*8240/5030	2-Hexanone	UG/KG-	0.89	10.00
02/18/98	MB*H021898*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/18/98	MB*H021898*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
02/19/98	MB*H021998*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00

[redacted]

KATALYST BATCH : P41047

[redacted]thod Blank Sample Summary

[redacted]

[redacted]ATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/19/98	MB*H021998*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/19/98	MB*H021998*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
[redacted]/19/98	MB*H021998*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
[redacted]/19/98	MB*H021998*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	75059*8240/5030	Acetone	UG/KG-	3.47	10.00
02/19/98	MB*H021998*1	34426*8240/5030	Methylene Chloride	UG/KG-	ND	5.00
[redacted]/19/98	MB*H021998*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
[redacted]/19/98	MB*H021998*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
[redacted]/19/98	MB*H021998*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	75078*8240/5030	2-Butanone	UG/KG-	2.42	10.00
[redacted]/19/98	MB*H021998*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
[redacted]/19/98	MB*H021998*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
[redacted]/19/98	MB*H021998*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
[redacted]/19/98	MB*H021998*1	34487*8240/5030	Trichloroethene	UG/KG-	0.52	5.00
[redacted]/19/98	MB*H021998*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
[redacted]/19/98	MB*H021998*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
[redacted]/19/98	MB*H021998*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
[redacted]/19/98	MB*H021998*1	34478*8240/5030	Tetrachloroethene	UG/KG-	ND	5.00
[redacted]/19/98	MB*H021998*1	75166*8240/5030	2-Hexanone	UG/KG-	1.09	10.00
[redacted]/19/98	MB*H021998*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
[redacted]/19/98	MB*H021998*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
[redacted]/19/98	MB*H021998*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/19/98	MB*H021998*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
[redacted]/20/98	MB*H022098*1	34421*8240/5030	Chloromethane	UG/KG-	ND	10.00
[redacted]/20/98	MB*H022098*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	10.00
[redacted]/20/98	MB*H022098*1	34416*8240/5030	Bromomethane	UG/KG-	ND	10.00
02/20/98	MB*H022098*1	34314*8240/5030	Chloroethane	UG/KG-	ND	10.00
02/20/98	MB*H022098*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	5.00
[redacted]/20/98	MB*H022098*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	5.00
[redacted]/20/98	MB*H022098*1	75059*8240/5030	Acetone	UG/KG-	3.35	10.00
02/20/98	MB*H022098*1	34426*8240/5030	Methylene Chloride	UG/KG-	0.65	5.00
02/20/98	MB*H022098*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	5.00
[redacted]/20/98	MB*H022098*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	5.00
[redacted]/20/98	MB*H022098*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	5.00
[redacted]/20/98	MB*H022098*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	75078*8240/5030	2-Butanone	UG/KG-	3.88	10.00
02/20/98	MB*H022098*1	34318*8240/5030	Chloroform	UG/KG-	ND	5.00
[redacted]/20/98	MB*H022098*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	5.00
[redacted]/20/98	MB*H022098*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34237*8240/5030	Benzene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	5.00
[redacted]/20/98	MB*H022098*1	34487*8240/5030	Trichloroethene	UG/KG-	ND	5.00
[redacted]/20/98	MB*H022098*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	5.00
[redacted]/20/98	MB*H022098*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	10.00
[redacted]/20/98	MB*H022098*1	34483*8240/5030	Toluene	UG/KG-	ND	5.00
[redacted]/20/98	MB*H022098*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34478*8240/5030	Tetrachloroethene	UG/KG-	0.95	5.00
[redacted]/20/98	MB*H022098*1	75166*8240/5030	2-Hexanone	UG/KG-	1.36	10.00
[redacted]/20/98	MB*H022098*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	5.00
[redacted]/20/98	MB*H022098*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	5.00
[redacted]/20/98	MB*H022098*1	75192*8240/5030	Styrene	UG/KG-	ND	5.00
[redacted]/20/98	MB*H022098*1	34290*8240/5030	Bromoform	UG/KG-	ND	5.00
02/20/98	MB*H022098*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	5.00
03/01/98	MB*H030198*4	34421*8240/5030	Chloromethane	UG/KG-	ND	1250
[redacted]/01/98	MB*H030198*4	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	1250
[redacted]/01/98	MB*H030198*4	34416*8240/5030	Bromomethane	UG/KG-	ND	1250
[redacted]/01/98	MB*H030198*4	34314*8240/5030	Chloroethane	UG/KG-	ND	1250
03/01/98	MB*H030198*4	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	625

[redacted]

KATALYST BATCH : P41047

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
03/01/98	MB*H030198*4	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	625
03/01/98	MB*H030198*4	75059*8240/5030	Acetone	UG/KG-	795	1250
03/01/98	MB*H030198*4	34426*8240/5030	Methylene Chloride	UG/KG-	105	625
03/01/98	MB*H030198*4	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	625
03/01/98	MB*H030198*4	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	625
03/01/98	MB*H030198*4	75078*8240/5030	2-Butanone	UG/KG-	289	1250
03/01/98	MB*H030198*4	34318*8240/5030	Chloroform	UG/KG-	ND	625
03/01/98	MB*H030198*4	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	625
03/01/98	MB*H030198*4	34237*8240/5030	Benzene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34487*8240/5030	Trichloroethene	UG/KG-	95.7	625
03/01/98	MB*H030198*4	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	625
03/01/98	MB*H030198*4	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	1250
03/01/98	MB*H030198*4	34483*8240/5030	Toluene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34478*8240/5030	Tetrachloroethene	UG/KG-	124	625
03/01/98	MB*H030198*4	75166*8240/5030	2-Hexanone	UG/KG-	286	1250
03/01/98	MB*H030198*4	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	625
03/01/98	MB*H030198*4	34304*8240/5030	Chlorobenzene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34374*8240/5030	Ethylbenzene	UG/KG-	ND	625
03/01/98	MB*H030198*4	45510*8240/5030	Xylenes (total)	UG/KG-	ND	625
03/01/98	MB*H030198*4	75192*8240/5030	Styrene	UG/KG-	ND	625
03/01/98	MB*H030198*4	34290*8240/5030	Bromoform	UG/KG-	ND	625
03/01/98	MB*H030198*4	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34421*8240/5030	Chloromethane	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34495*8240/5030	Vinyl Chloride	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34416*8240/5030	Bromomethane	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34314*8240/5030	Chloroethane	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34504*8240/5030	1,1-Dichloroethene	UG/KG-	ND	625
03/02/98	MB*H030298*1	78544*8240/5030	Carbon Disulfide	UG/KG-	ND	625
03/02/98	MB*H030298*1	75059*8240/5030	Acetone	UG/KG-	782	1250
03/02/98	MB*H030298*1	34426*8240/5030	Methylene Chloride	UG/KG-	80.3	625
03/02/98	MB*H030298*1	34549*8240/5030	trans-1,2-Dichloroethene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34499*8240/5030	1,1-Dichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	78498*8240/5030	Vinyl Acetate	UG/KG-	ND	625
03/02/98	MB*H030298*1	97354*8240/5030	cis-1,2-Dichloroethene	UG/KG-	ND	625
03/02/98	MB*H030298*1	75078*8240/5030	2-Butanone	UG/KG-	391	1250
03/02/98	MB*H030298*1	34318*8240/5030	Chloroform	UG/KG-	ND	625
03/02/98	MB*H030298*1	34509*8240/5030	1,1,1-Trichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34299*8240/5030	Carbon Tetrachloride	UG/KG-	ND	625
03/02/98	MB*H030298*1	34237*8240/5030	Benzene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34534*8240/5030	1,2-Dichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34487*8240/5030	Trichloroethene	UG/KG-	97.6	625
03/02/98	MB*H030298*1	34544*8240/5030	1,2-Dichloropropane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34330*8240/5030	Bromodichloromethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34702*8240/5030	cis-1,3-Dichloropropene	UG/KG-	ND	625
03/02/98	MB*H030298*1	75169*8240/5030	4-Methyl-2-pentanone	UG/KG-	ND	1250
03/02/98	MB*H030298*1	34483*8240/5030	Toluene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34697*8240/5030	trans-1,3-Dichloropropene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34514*8240/5030	1,1,2-Trichloroethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34478*8240/5030	Tetrachloroethene	UG/KG-	295	625
03/02/98	MB*H030298*1	75166*8240/5030	2-Hexanone	UG/KG-	271	1250
03/02/98	MB*H030298*1	34309*8240/5030	Dibromochloromethane	UG/KG-	ND	625
03/02/98	MB*H030298*1	34304*8240/5030	Chlorobenzene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34374*8240/5030	Ethylbenzene	UG/KG-	ND	625
03/02/98	MB*H030298*1	45510*8240/5030	Xylenes (total)	UG/KG-	ND	625
03/02/98	MB*H030298*1	75192*8240/5030	Styrene	UG/KG-	ND	625
03/02/98	MB*H030298*1	34290*8240/5030	Bromoform	UG/KG-	ND	625
03/02/98	MB*H030298*1	34519*8240/5030	1,1,2,2-Tetrachloroethane	UG/KG-	ND	625

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/16/98	SPM1*26653*11	34504	1,1-Dichloroethene	UG/KG-	0.0	64.5	90.2	139.8	59-172		
02/16/98	SPM1*26653*11	34237	Benzene	UG/KG-	0.0	64.5	84.4	130.9	66-142		
02/16/98	SPM1*26653*11	34487	Trichloroethene	UG/KG-	0.0	64.5	69.3	107.4	62-137		
02/16/98	SPM1*26653*11	34483	Toluene	UG/KG-	0.0	64.5	86.1	133.5	59-139		

[redacted]ATALYST BATCH : P41047

[redacted]ample Matrix Spike Recovery Summary

[redacted]ATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/16/98	SPM1*26653*11	34304	Chlorobenzene	UG/KG-	0.0	64.5	77.8	120.6	60-133		
02/16/98	SPM2*26653*11	34504	1,1-Dichloroethene	UG/KG-	0.0	64.5	91.5	141.9	59-172	1.40	22
[redacted]2/16/98	SPM2*26653*11	34237	Benzene	UG/KG-	0.0	64.5	82.8	128.4	66-142	2.00	21
[redacted]2/16/98	SPM2*26653*11	34487	Trichloroethene	UG/KG-	0.0	64.5	68.0	105.4	62-137	1.90	24
[redacted]2/16/98	SPM2*26653*11	34483	Toluene	UG/KG-	0.0	64.5	81.4	126.2	59-139	5.60	21
02/16/98	SPM2*26653*11	34304	Chlorobenzene	UG/KG-	0.0	64.5	74.5	115.5	60-133	4.30	21
[redacted]2/16/98	SPM1*26668*2	34504	1,1-Dichloroethene	UG/KG-	0.0	64.0	89.9	140.5	59-172		
[redacted]2/16/98	SPM1*26668*2	34237	Benzene	UG/KG-	0.0	64.0	83.6	130.6	66-142		
[redacted]2/16/98	SPM1*26668*2	34487	Trichloroethene	UG/KG-	0.0	64.0	68.9	107.7	62-137		
02/16/98	SPM1*26668*2	34483	Toluene	UG/KG-	0.0	64.0	83.1	129.8	59-139		
02/16/98	SPM1*26668*2	34304	Chlorobenzene	UG/KG-	0.0	64.0	73.3	114.5	60-133		
[redacted]2/16/98	SPM2*26668*2	34504	1,1-Dichloroethene	UG/KG-	0.0	64.0	88.9	138.9	59-172	1.10	22
[redacted]2/16/98	SPM2*26668*2	34237	Benzene	UG/KG-	0.0	64.0	88.5	138.3	66-142	5.70	21
02/16/98	SPM2*26668*2	34487	Trichloroethene	UG/KG-	0.0	64.0	73.3	114.5	62-137	6.10	24
02/16/98	SPM2*26668*2	34483	Toluene	UG/KG-	0.0	64.0	83.3	130.2	59-139	0.20	21
[redacted]2/16/98	SPM2*26668*2	34304	Chlorobenzene	UG/KG-	0.0	64.0	76.0	118.8	60-133	3.60	21
[redacted]2/20/98	SPM1*26688*2	34504	1,1-Dichloroethene	UG/KG-	0.0	63.6	87.5	137.6	59-172		
[redacted]2/20/98	**SPM1*26688*2**	**34237**	**Benzene**	**UG/KG-**	**0.0**	**63.6**	**91.1**	**143.2**	**66-142**		
02/20/98	SPM1*26688*2	34487	Trichloroethene	UG/KG-	1.38	63.6	74.4	117.0	62-137		
02/20/98	SPM1*26688*2	34483	Toluene	UG/KG-	0.0	63.6	86.0	135.2	59-139		
[redacted]2/20/98	SPM1*26688*2	34304	Chlorobenzene	UG/KG-	0.0	63.6	78.9	124.1	60-133		
[redacted]2/20/98	SPM2*26688*2	34504	1,1-Dichloroethene	UG/KG-	0.0	63.6	83.3	131.0	59-172	5.00	22
02/20/98	SPM2*26688*2	34237	Benzene	UG/KG-	0.0	63.6	84.5	132.9	66-142	7.50	21
02/20/98	SPM2*26688*2	34487	Trichloroethene	UG/KG-	1.38	63.6	71.7	112.7	62-137	3.80	24
[redacted]2/20/98	SPM2*26688*2	34483	Toluene	UG/KG-	0.0	63.6	80.7	126.9	59-139	6.30	21
[redacted]2/20/98	SPM2*26688*2	34304	Chlorobenzene	UG/KG-	0.0	63.6	74.2	116.7	60-133	6.20	21

Surrogate Spike Recovery Summary

[redacted]ATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
[redacted]2/20/98	DA*26688*1	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	58	120	70-121
02/20/98	DA*26688*1	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	58	120	81-121
02/20/98	**DA*26688*1**	**98403*SUR**	**BROMOFLUOROBENZENE (SW846)**	**UG/KG-**	**50**	**99**	**200**	**74-121**
[redacted]2/20/98	**DA*26688*2**	**98813*SUR**	**1,2-DICHLOROETHANE-D4 (SW846)**	**UG/KG-**	**50**	**66**	**130**	**70-121**
[redacted]2/20/98	DA*26688*2	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	55	110	81-121
[redacted]2/20/98	DA*26688*2	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	56	110	74-121
02/20/98	**SPM1*26688*2**	**98813*SUR**	**1,2-DICHLOROETHANE-D4 (SW846)**	**UG/KG-**	**50**	**65**	**130**	**70-121**
02/20/98	SPM1*26688*2	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	55	110	81-121
[redacted]2/20/98	SPM1*26688*2	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	56	110	74-121
[redacted]2/20/98	**SPM2*26688*2**	**98813*SUR**	**1,2-DICHLOROETHANE-D4 (SW846)**	**UG/KG-**	**50**	**64**	**130**	**70-121**
[redacted]2/20/98	SPM2*26688*2	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	55	110	81-121
02/20/98	SPM2*26688*2	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	56	110	74-121
[redacted]2/20/98	**DA*26688*4**	**98813*SUR**	**1,2-DICHLOROETHANE-D4 (SW846)**	**UG/KG-**	**50**	**63**	**130**	**70-121**
[redacted]2/20/98	DA*26688*4	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	56	110	81-121
[redacted]2/20/98	DA*26688*4	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	55	110	74-121
02/20/98	DA*26688*5	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	62	120	70-121
02/20/98	DA*26688*5	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	57	110	81-121
[redacted]2/20/98	DA*26688*5	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	55	110	74-121
[redacted]2/21/98	**DA*26688*6**	**98813*SUR**	**1,2-DICHLOROETHANE-D4 (SW846)**	**UG/KG-**	**50**	**64**	**130**	**70-121**
02/21/98	DA*26688*6	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	57	110	81-121
02/21/98	DA*26688*6	98403*SUR	BROMOFLUOROBENZENE (SW846)	UG/KG-	50	55	110	74-121
[redacted]3/02/98	DA*26688*1*D	98813*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/KG-	50	52	100	70-121
[redacted]3/02/98	DA*26688*1*D	98811*SUR	TOLUENE-D8 (SW846)	UG/KG-	50	49	98	81-121
[redacted]3/02/98	**DA*26688*1*D**	**98403*SUR**	**BROMOFLUOROBENZENE (SW846)**	**UG/KG-**	**50**	**91**	**180**	**74-121**

KATALYST BATCH : P41047

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P41047 Analysis Date: 03/02/98 Analyst: TROY AVERY Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	34237*8240/5030
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?	X		
Surrogate present?	X		
Surrogate within acceptance criteria?		X	98813*SUR 98811*SUR 98403*SUR

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P41052
ANALYSIS : E160.3

QC TYPE : FDER/SW
ANALYST : TODD PETERSON
EXTRACTOR :
DATA ENTRY : SPREADSHEET UPLOAD

REPORT DATE/TIME : 03/09/98 13:22
ANALYSIS DATE/TIME : 03/02/98
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26688	CLIENT	110S01 5100	QST ST.LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26688*1	S17B7 3.5'-4.5'	03/02/98	
DA*26688*2	S17B7 7.5'-8.5'	03/02/98	
DA*26688*3	S17B7 28'-30'	03/02/98	
DA*26688*4	S17B7 31.5'-32.	03/02/98	
DA*26688*5	S17B8 6'-7'	03/02/98	
DA*26688*6	S17B8 11.5'-12.	03/02/98	

KATALYST BATCH : P41052
Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P41052 Analysis Date: 03/02/98 Analyst: TODD PETERSON Report Date: 03/09/98

	Yes	No
Are ALL units documented in batch?	X	
Analysis holding time within criteria?	X	

BATCH OVERRIDE BY:

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P41038
ANALYSIS : 8240

QC TYPE : FDER/SW
ANALYST : TROY AVERY
EXTRACTOR :
DATA ENTRY : GCMS UPLOAD

REPORT DATE/TIME : 03/09/98 13:22
ANALYSIS DATE/TIME : 03/01/98
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
8240 WATERS

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26688	CLIENT	110S01 5100	QST ST.LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA'26688*7	S17 MW2	02/17/98	08:55PM
DA'26688*8	S17 MW3	02/20/98	08:04PM
DA'26688*7	S17 MW2	03/01/98	08:47PM

KATALYST BATCH : P41038

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	LCS*I021798*1	34501*8240/5030	1,1-Dichloroethene	UG/L	50.0	56.6	113.2	61-145
02/17/98	LCS*I021798*1	34030*8240/5030	Benzene	UG/L	50.0	54.1	108.2	76-127
02/17/98	LCS*I021798*1	39180*8240/5030	Trichloroethene	UG/L	50.0	52.8	105.6	71-120
02/17/98	LCS*I021798*1	34010*8240/5030	Toluene	UG/L	50.0	54.3	108.6	76-125
02/17/98	LCS*I021798*1	34301*8240/5030	Chlorobenzene	UG/L	50.0	51.7	103.4	75-130
02/20/98	LCS*I022098*1	34501*8240/5030	1,1-Dichloroethene	UG/L	50.0	58.6	117.2	61-145
02/20/98	LCS*I022098*1	34030*8240/5030	Benzene	UG/L	50.0	53.6	107.2	76-127
02/20/98	LCS*I022098*1	39180*8240/5030	Trichloroethene	UG/L	50.0	51.2	102.4	71-120
02/20/98	LCS*I022098*1	34010*8240/5030	Toluene	UG/L	50.0	51.6	103.2	76-125
02/20/98	LCS*I022098*1	34301*8240/5030	Chlorobenzene	UG/L	50.0	49.8	99.6	75-130
03/01/98	LCS*H030198*2	34501*8240/5030	1,1-Dichloroethene	UG/L	50.0	59.0	118.0	61-145
03/01/98	LCS*H030198*2	34030*8240/5030	Benzene	UG/L	50.0	55.3	110.6	76-127
03/01/98	LCS*H030198*2	39180*8240/5030	Trichloroethene	UG/L	50.0	55.6	111.2	71-120
03/01/98	LCS*H030198*2	34010*8240/5030	Toluene	UG/L	50.0	52.4	104.8	76-125
03/01/98	LCS*H030198*2	34301*8240/5030	Chlorobenzene	UG/L	50.0	54.0	108.0	75-130

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/17/98	MB*I021798*1	34418*8240/5030	Chloromethane	UG/L	ND	10.00
02/17/98	MB*I021798*1	39175*8240/5030	Vinyl Chloride	UG/L	ND	10.00
02/17/98	MB*I021798*1	34413*8240/5030	Bromomethane	UG/L	ND	10.00
02/17/98	MB*I021798*1	34311*8240/5030	Chloroethane	UG/L	ND	10.00
02/17/98	MB*I021798*1	34501*8240/5030	1,1-Dichloroethene	UG/L	ND	5.00
02/17/98	MB*I021798*1	77041*8240/5030	Carbon Disulfide	UG/L	ND	5.00
02/17/98	MB*I021798*1	81552*8240/5030	Acetone	UG/L	ND	10.00
02/17/98	MB*I021798*1	34423*8240/5030	Methylene Chloride	UG/L	ND	5.00
02/17/98	MB*I021798*1	34546*8240/5030	trans-1,2-dichloroethene	UG/L	ND	5.00
02/17/98	MB*I021798*1	34496*8240/5030	1,1-Dichloroethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	77057*8240/5030	Vinyl Acetate	UG/L	ND	5.00
02/17/98	MB*I021798*1	77093*8240/5030	cis-1,2-Dichloroethene	UG/L	ND	5.00
02/17/98	MB*I021798*1	81595*8240/5030	2-Butanone	UG/L	ND	10.00
02/17/98	MB*I021798*1	32106*8240/5030	Chloroform	UG/L	ND	5.00
02/17/98	MB*I021798*1	34506*8240/5030	1,1,1-Trichloroethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	32102*8240/5030	Carbon Tetrachloride	UG/L	ND	5.00
02/17/98	MB*I021798*1	34030*8240/5030	Benzene	UG/L	ND	5.00
02/17/98	MB*I021798*1	34531*8240/5030	1,2-Dichloroethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	39180*8240/5030	Trichloroethene	UG/L	0.55	5.00
02/17/98	MB*I021798*1	34541*8240/5030	1,2-Dichloropropane	UG/L	ND	5.00
02/17/98	MB*I021798*1	32101*8240/5030	Bromodichloromethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	34704*8240/5030	cis-1,3-Dichloropropene	UG/L	ND	5.00
02/17/98	MB*I021798*1	81596*8240/5030	4-Methyl-2-pentanone	UG/L	ND	10.00
02/17/98	MB*I021798*1	34010*8240/5030	Toluene	UG/L	ND	5.00
02/17/98	MB*I021798*1	34699*8240/5030	trans-1,3-Dichloropropene	UG/L	ND	5.00
02/17/98	MB*I021798*1	34511*8240/5030	1,1,2-Trichloroethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	34475*8240/5030	Tetrachloroethene	UG/L	0.65	5.00
02/17/98	MB*I021798*1	77103*8240/5030	2-Hexanone	UG/L	ND	10.00
02/17/98	MB*I021798*1	32105*8240/5030	Dibromochloromethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	34301*8240/5030	Chlorobenzene	UG/L	ND	5.00
02/17/98	MB*I021798*1	34371*8240/5030	Ethylbenzene	UG/L	ND	5.00
02/17/98	MB*I021798*1	81551*8240/5030	Xylenes (total)	UG/L	ND	5.00
02/17/98	MB*I021798*1	77128*8240/5030	Styrene	UG/L	ND	5.00
02/17/98	MB*I021798*1	32104*8240/5030	Bromoform	UG/L	ND	5.00
02/17/98	MB*I021798*1	34516*8240/5030	1,1,2,2-Tetrachloroethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	34418*8240/5030	Chloromethane	UG/L	ND	10.00
02/20/98	MB*I022098*1	39175*8240/5030	Vinyl Chloride	UG/L	ND	10.00
02/20/98	MB*I022098*1	34413*8240/5030	Bromomethane	UG/L	ND	10.00
02/20/98	MB*I022098*1	34311*8240/5030	Chloroethane	UG/L	ND	10.00
02/20/98	MB*I022098*1	34501*8240/5030	1,1-Dichloroethene	UG/L	ND	5.00
02/20/98	MB*I022098*1	77041*8240/5030	Carbon Disulfide	UG/L	ND	5.00
02/20/98	MB*I022098*1	81552*8240/5030	Acetone	UG/L	ND	10.00
02/20/98	MB*I022098*1	34423*8240/5030	Methylene Chloride	UG/L	ND	5.00
02/20/98	MB*I022098*1	34546*8240/5030	trans-1,2-dichloroethene	UG/L	ND	5.00
02/20/98	MB*I022098*1	34496*8240/5030	1,1-Dichloroethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	77057*8240/5030	Vinyl Acetate	UG/L	ND	5.00
02/20/98	MB*I022098*1	77093*8240/5030	cis-1,2-Dichloroethene	UG/L	ND	5.00
02/20/98	MB*I022098*1	81595*8240/5030	2-Butanone	UG/L	3.99	10.00
02/20/98	MB*I022098*1	32106*8240/5030	Chloroform	UG/L	ND	5.00
02/20/98	MB*I022098*1	34506*8240/5030	1,1,1-Trichloroethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	32102*8240/5030	Carbon Tetrachloride	UG/L	ND	5.00
02/20/98	MB*I022098*1	34030*8240/5030	Benzene	UG/L	ND	5.00
02/20/98	MB*I022098*1	34531*8240/5030	1,2-Dichloroethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	39180*8240/5030	Trichloroethene	UG/L	0.52	5.00

KATALYST BATCH : P41038

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/20/98	MB*I022098*1	34541*8240/5030	1,2-Dichloropropane	UG/L	ND	5.00
02/20/98	MB*I022098*1	32101*8240/5030	Bromodichloromethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	34704*8240/5030	cis-1,3-Dichloropropene	UG/L	ND	5.00
02/20/98	MB*I022098*1	81596*8240/5030	4-Methyl-2-pentanone	UG/L	ND	10.00
02/20/98	MB*I022098*1	34010*8240/5030	Toluene	UG/L	ND	5.00
02/20/98	MB*I022098*1	34699*8240/5030	trans-1,3-Dichloropropene	UG/L	ND	5.00
02/20/98	MB*I022098*1	34511*8240/5030	1,1,2-Trichloroethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	34475*8240/5030	Tetrachloroethene	UG/L	1.85	5.00
02/20/98	MB*I022098*1	77103*8240/5030	2-Hexanone	UG/L	3.85	10.00
02/20/98	MB*I022098*1	32105*8240/5030	Dibromochloromethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	34301*8240/5030	Chlorobenzene	UG/L	ND	5.00
02/20/98	MB*I022098*1	34371*8240/5030	Ethylbenzene	UG/L	ND	5.00
02/20/98	MB*I022098*1	81551*8240/5030	Xylenes (total)	UG/L	ND	5.00
02/20/98	MB*I022098*1	77128*8240/5030	Styrene	UG/L	ND	5.00
02/20/98	MB*I022098*1	32104*8240/5030	Bromoform	UG/L	ND	5.00
02/20/98	MB*I022098*1	34516*8240/5030	1,1,2,2-Tetrachloroethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	34418*8240/5030	Chloromethane	UG/L	ND	10.00
03/01/98	MB*H030198*3	39175*8240/5030	Vinyl Chloride	UG/L	ND	10.00
03/01/98	MB*H030198*3	34413*8240/5030	Bromomethane	UG/L	ND	10.00
03/01/98	MB*H030198*3	34311*8240/5030	Chloroethane	UG/L	ND	10.00
03/01/98	MB*H030198*3	34501*8240/5030	1,1-Dichloroethene	UG/L	ND	5.00
03/01/98	MB*H030198*3	77041*8240/5030	Carbon Disulfide	UG/L	ND	5.00
03/01/98	MB*H030198*3	81552*8240/5030	Acetone	UG/L	ND	10.00
03/01/98	MB*H030198*3	34423*8240/5030	Methylene Chloride	UG/L	0.89	5.00
03/01/98	MB*H030198*3	34546*8240/5030	trans-1,2-dichloroethene	UG/L	ND	5.00
03/01/98	MB*H030198*3	34496*8240/5030	1,1-Dichloroethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	77057*8240/5030	Vinyl Acetate	UG/L	ND	5.00
03/01/98	MB*H030198*3	77093*8240/5030	cis-1,2-Dichloroethene	UG/L	ND	5.00
03/01/98	MB*H030198*3	81595*8240/5030	2-Butanone	UG/L	2.30	10.00
03/01/98	MB*H030198*3	32106*8240/5030	Chloroform	UG/L	ND	5.00
03/01/98	MB*H030198*3	34506*8240/5030	1,1,1-Trichloroethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	32102*8240/5030	Carbon Tetrachloride	UG/L	ND	5.00
03/01/98	MB*H030198*3	34030*8240/5030	Benzene	UG/L	ND	5.00
03/01/98	MB*H030198*3	34531*8240/5030	1,2-Dichloroethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	39180*8240/5030	Trichloroethene	UG/L	0.67	5.00
03/01/98	MB*H030198*3	34541*8240/5030	1,2-Dichloropropane	UG/L	ND	5.00
03/01/98	MB*H030198*3	32101*8240/5030	Bromodichloromethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	34704*8240/5030	cis-1,3-Dichloropropene	UG/L	ND	5.00
03/01/98	MB*H030198*3	81596*8240/5030	4-Methyl-2-pentanone	UG/L	ND	10.00
03/01/98	MB*H030198*3	34010*8240/5030	Toluene	UG/L	ND	5.00
03/01/98	MB*H030198*3	34699*8240/5030	trans-1,3-Dichloropropene	UG/L	ND	5.00
03/01/98	MB*H030198*3	34511*8240/5030	1,1,2-Trichloroethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	34475*8240/5030	Tetrachloroethene	UG/L	0.97	5.00
03/01/98	MB*H030198*3	77103*8240/5030	2-Hexanone	UG/L	2.42	10.00
03/01/98	MB*H030198*3	32105*8240/5030	Dibromochloromethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	34301*8240/5030	Chlorobenzene	UG/L	ND	5.00
03/01/98	MB*H030198*3	34371*8240/5030	Ethylbenzene	UG/L	ND	5.00
03/01/98	MB*H030198*3	81551*8240/5030	Xylenes (total)	UG/L	ND	5.00
03/01/98	MB*H030198*3	77128*8240/5030	Styrene	UG/L	ND	5.00
03/01/98	MB*H030198*3	32104*8240/5030	Bromoform	UG/L	ND	5.00
03/01/98	MB*H030198*3	34516*8240/5030	1,1,2,2-Tetrachloroethane	UG/L	ND	5.00

Sample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/17/98	SPM1*26682*10	34501	1,1-Dichloroethene	UG/L	177	50.0	39.0	78.0	61-145		
02/17/98	SPM1*26682*10	34030	Benzene	UG/L	21.3	50.0	50.8	101.6	76-127		
02/17/98	**SPM1*26682*10**	**39180**	**Trichloroethene**	**UG/L**	**4500**	**50.0**	**-290**	**N/C**	**71-120**		
02/17/98	**SPM1*26682*10**	**34010**	**Toluene**	**UG/L**	**1210**	**50.0**	**-30.0**	**N/C**	**76-125**		
02/17/98	SPM1*26682*10	34301	Chlorobenzene	UG/L	0.0	50.0	50.9	101.8	75-130		
02/17/98	SPM2*26682*10	34501	1,1-Dichloroethene	UG/L	177	50.0	43.0	86.0	61-145	9.80	14
02/17/98	SPM2*26682*10	34030	Benzene	UG/L	21.3	50.0	54.5	109.0	76-127	7.00	11
02/17/98	**SPM2*26682*10**	**39180**	**Trichloroethene**	**UG/L**	**4500**	**50.0**	**-270**	**N/C**	**71-120**		
02/17/98	**SPM2*26682*10**	**34010**	**Toluene**	**UG/L**	**1210**	**50.0**	**-40.0**	**N/C**	**76-125**		
02/17/98	SPM2*26682*10	34301	Chlorobenzene	UG/L	0.0	50.0	53.7	107.4	75-130	5.40	13

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	DA*26688*7	98812*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/L	50	53	110	76-114
02/17/98	DA*26688*7	98810*SUR	TOLUENE-D8 (SW846)	UG/L	50	50	100	76-149
02/17/98	DA*26688*7	28941*SUR	4-BROMOFLUOROBENZENE	UG/L	50	48	96	73-118
02/20/98	DA*26688*8	98812*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/L	50	52	100	76-114

N/C - Not Calculated

KATALYST BATCH : P41038

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/20/98	DA*26688*8	98810*SUR	TOLUENE-D8 (SW846)	UG/L	50	49	98	76-149
02/20/98	**DA*26688*8**	**28941*SUR**	**4-BROMOFLUOROBENZENE**	**UG/L**	**50**	**60**	**120**	**73-118**
03/01/98	DA*26688*7*D	98812*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/L	50	51	100	76-114
03/01/98	DA*26688*7*D	98810*SUR	TOLUENE-D8 (SW846)	UG/L	50	46	92	76-149
03/01/98	DA*26688*7*D	28941*SUR	4-BROMOFLUOROBENZENE	UG/L	50	50	100	73-118

KATALYST BATCH : P41038

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P41038 Analysis Date: 03/01/98 Analyst: TROY AVERY Report Date: 03/09/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	39180*8240/5030 34010*8240/5030
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?		X	39180*8240/5030 34010*8240/5030
Surrogate present?	X		
Surrogate within acceptance criteria?		X	28941*SUR

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

KATALYST BATCH : P40866
ANALYSIS : 9010

QC TYPE : FDER/SW
ANALYST : HEATHER SLEE
EXTRACTOR : HEATHER SLEE
DATA ENTRY : HEATHER SLEE

REPORT DATE/TIME : 03/09/98 13:23
ANALYSIS DATE/TIME : 02/11/98 16:00
EXTRACT DATE : 02/11/98

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
BOEING CN H20

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26688	CLIENT	110S01 5100	QST ST.LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26688*9	S21 MW1	02/11/98	05:25PM

KATALYST BATCH : P40866

Continuing Calibration Verification Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/11/98	CCV*CN_980211*2	720*9010	Cyanide	MG/L	0.080	0.086	108	90-110
02/11/98	CCV*CN_980211*3	720*9010	Cyanide	MG/L	0.080	0.084	105	90-110

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/11/98	LCS*CN_980211*5	720*9010	Cyanide	MG/L	0.100	0.091	91.0	80-120
02/11/98	LCS*CN_980211*4	720*9010	Cyanide	MG/L	0.200	0.191	95.5	80-120

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/11/98	MB*CN_980211*2	720*9010	Cyanide	MG/L	ND	0.005

KATALYST BATCH : P40866

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P40866 Analysis Date: 02/11/98 Analyst: HEATHER SLEE Report Date: 03/09/98

	Yes	No
Are ALL units documented in batch?	X	
Analysis holding time within criteria?	X	
No. of calibration standards present acceptable?	X	
Curve correlation coefficient >= 0.995?	X	
Calibration curve y-intercept < curve detection limit?	X	
Sample responses within highest standard response?	X	
CCV present?	X	
CCV within acceptance criteria?	X	
LCS present?	X	
LCS within acceptance criteria?	X	
Method blank present?	X	
Method blank within acceptance criteria?	X	
Sample matrix spike present?		X
Sample matrix spike within acceptance criteria?		

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

CHAIN OF CUSTODY DOCUMENTATION

Environmental Science & Engineering, Inc.
A CILCORP Company
11665 Lilburn Park Road, St. Louis, MO 63146-3535
Telephone: (314) 567-4600 -- Fax: (314) 567-5030

0044

FOR LAB USE ONLY
Project Number: _____

Chain of Custody Record

Client: See QST
Address: 11665 Lilburn Park
St. Louis, MO 63146
Phone #: 314 567-4600 Fax #: (__)____-____
P.O. #: _____
Client Contact: Scott George
Project # / Location: Boeing

Sample Type:
1. Water
2. Soil
3. Sludge
4. Oil
5. Tissue
Other : _____

Container Type:
P - Plastic
G - Glass
V - VOC

Preservative:
1. None 4. NaOH
2. H2SO4 5. HCl
3. HNO3

Sample I.D. (10 Characters ONLY)	Sample Type	Container Size	Container Type	Container No.	Sampling Date	Sampling Time	Preservative	Lab I.D.	VOCs	Cyanide	pH	Specific Conductivity	Temperature	Comments
S17B73.5-4.5'	Soil	8oz 4oz	G	2	2-6-98	0820	Ice	26688-1	X	X				
S17B77.5-8.5'		4oz	G	1		0830		-2	X					
S17B728-30		4oz	G	1		1025		-3	X					Hold, no analysis yet
S17B731.5-32.5		4oz	G	2		1045		-4	X					
S17B8 6-7		8oz 4oz	G	3		1310		-5	X					
S17B8 11.5-12.5		4oz.	G	3		1320		-6	X					
S17MW2		40mL	G	2		1350		-7	X					
S17MW3		40mL	G	2		1515		-8	X					
S21MW1		1qt	P	1	↓	1445		-9		X				

Relinquished By: Scott George
Date: 2-6-98
Time: 18:00

Relinquished By:
Date: -- --
Time: :

Received By:
Date: -- --
Time: :

Received For Lab By:
Date: 2-7-98
Time: 11:08

FOR LAB USE ONLY
Samples Received Chilled
☒ Yes ☐ No
4 °C
2/7/98

SPECIAL INSTRUCTIONS:

Copies: White - Client Canary - Lab Receiving Pink - Lab File Goldenrod - Retained by Sampler

KATALYST
ANALYTICAL TECHNOLOGIES, INC.

March 17, 1998

Mr. Scott George
QST Environmental
11665 Lilburn Park Road
St. Louis, MO 63146

Dear Mr. George,

Katalyst Analytical Technologies, Inc., appreciates the opportunity to provide the attached report of analyses for Katalyst sample delivery group #26694, received 02/10/98 by our laboratory. This deliverable includes case narrative, tabulated results, QC summary, dates report and chain of custody documentation.

Should you have any questions regarding this data, please contact me at (309) 589-8004.

Sincerely,

KATALYST ANALYTICAL TECHNOLOGIES, INC.

Dan Moore
Project Manager

Attachments

8901 N. Industrial Road • Suite 100 • Peoria, IL 61615-1581 • Phone: (309) 589-8000 • Fax: (309) 692-5232 • www.katalyst1.com

CASE NARRATIVE

KATALYST
ANALYTICAL TECHNOLOGIES, INC.

CASE NARRATIVE/VALIDATION REPORT

QST Environmental / Boeing
Fg# 26694

Katalyst Analytical Technologies, Inc., received 2 water samples on 2/10/98 on ice and in good condition. The sample set was designated as one sample delivery batch, 26694 for Volatile Organics analyses.

LAB NO.	CLIENT ID	DATE COLLECTED	DATE RECEIVED
26694*1	S17MW4'	2/9/98	2/10/98
26694*2	S17MW4D	2/9/98	2/10/98

Volatile Organics (8240) Project Summary:

The samples were analyzed on 02/17/98, within the method specified hold-time. Dilutions analyses for tetrachloroethane were performed on samples 26694*1 and *2, outside of the EPA recommended hold-time.

Volatile Organics (8240) QC Summary:

All holding time criteria were met except as noted above.

The laboratory method blank did not contain any analytes of interest above the reporting limit.

GC/MS tuning ion abundance criteria for Bromofluorobenzene (BFB) was within the established control limits

All initial and continuing calibration standards met the criteria of the method except for the following: trans-1,2-dichlorothene in the continuing calibration verification standard. All samples associated with these CCVs did not contain trans-1,2-dichloroethene. Identification of this analyte is unaffected by this outlier. Therefore, the data is unaffected as reported

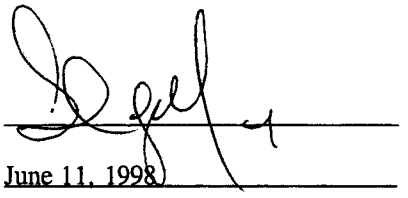
The surrogate spike recoveries were within method specified limits

All spike recoveries in the laboratory control sample were within method specified limits.

The associated matrix spike and duplicate were performed on sample 26668*10 from this project. The matrix spike and duplicate recoveries were within method specified limits except for trichloroethene and toluene. The amount of trichloroethene and toluene spiked in 26688*10MS/MSD is insignificant compared to the amount found in the associated sample. The laboratory control sample verifies method and instrument performance

A review of the data indicated that the retention times and mass spectra of the sample analytes are in agreement with the calibration standards.

Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Signature:		Name:	Daniel J. Moore
Date	June 11, 1998	Title:	Project Manager
Signature:		Name:	Michael Travis
Date	June 11, 1998	Title:	QA Manager

ANALYTICAL RESULTS

CLIENT SAMPLE ID'S:			S17 MW4	S17 MW4DL	S17 MW4D	S17 MW4DDL
FIELD GROUP:			26694	26694	26694	26694
SEQUENCE #:			1	1 DL	2	2 DL
DATE COLLECTED:			02/09/98	02/09/98	02/09/98	02/09/98
TIME COLLECTED:			09:30	09:30	09:35	09:35
PARAMETERS	UNITS	METHOD				
Acetone	UG/L	8240	26	NA	24	NA
Benzene	UG/L	8240	<5.0	NA	<5.0	NA
Bromodichloromethane	UG/L	8240	<5.0	NA	<5.0	NA
Bromoform	UG/L	8240	<5.0	NA	<5.0	NA
Bromomethane	UG/L	8240	<10	NA	<10	NA
2-Butanone	UG/L	8240	<10	NA	<10	NA
Carbon Disulfide	UG/L	8240	<5.0	NA	<5.0	NA
Carbon Tetrachloride	UG/L	8240	<5.0	NA	<5.0	NA
Chlorobenzene	UG/L	8240	<5.0	NA	<5.0	NA
Chloroethane	UG/L	8240	<10	NA	<10	NA
Chloroform	UG/L	8240	<5.0	NA	<5.0	NA
Chloromethane	UG/L	8240	<10	NA	<10	NA
Dibromochloromethane	UG/L	8240	<5.0	NA	<5.0	NA
1,1-Dichloroethane	UG/L	8240	<5.0	NA	<5.0	NA
1,2-Dichloroethane	UG/L	8240	<5.0	NA	<5.0	NA
1,1-Dichloroethene	UG/L	8240	<5.0	NA	<5.0	NA
cis-1,2-Dichloroethene	UG/L	8240	59	NA	58	NA
1,2-Dichloropropane	UG/L	8240	<5.0	NA	<5.0	NA
cis-1,3-Dichloropropene	UG/L	8240	<5.0	NA	<5.0	NA
trans-1,3-Dichloropropene	UG/L	8240	<5.0	NA	<5.0	NA
Ethylbenzene	UG/L	8240	6.2	NA	5.5	NA
2-Hexanone	UG/L	8240	<10	NA	<10	NA
4-Methyl-2-pentanone	UG/L	8240	<10	NA	<10	NA
Methylene Chloride	UG/L	8240	<5.0	NA	<5.0	NA
Styrene	UG/L	8240	<5.0	NA	<5.0	NA
1,1,2,2-Tetrachloroethane	UG/L	8240	<5.0	NA	<5.0	NA
Tetrachloroethene	UG/L	8240	5000E	17000X	5200E	11000X
Toluene	UG/L	8240	36	NA	35	NA
1,1,1-Trichloroethane	UG/L	8240	<5.0	NA	<5.0	NA

E - Result exceeds calibration range.
X - Please see case narrative
DL - Dilution

PROJECT NUMBER 110S01 5100 PROJECT NAME QST ST.LOUIS/BOEING
FIELD GROUP LAB COORDINATOR Daniel Moore

CLIENT SAMPLE ID'S:			S17 MW4	S17 MW4DL	S17 MW4D	S17 MW4DDL
FIELD GROUP:			26694	26694	26694	26694
SEQUENCE #:			1	1 DL	2	2 DL
DATE COLLECTED:			02/09/98	02/09/98	02/09/98	02/09/98
TIME COLLECTED:			09:30	09:30	09:35	09:35
PARAMETERS	UNITS	METHOD				
1,1,2-Trichloroethane	UG/L	8240	<5.0	NA	<5.0	NA
Trichloroethene	UG/L	8240	150	NA	150	NA
Vinyl Acetate	UG/L	8240	<5.0	NA	<5.0	NA
Vinyl Chloride	UG/L	8240	<10	NA	<10	NA
Xylenes (total)	UG/L	8240	17	NA	16	NA
trans-1,2-dichloroethene	UG/L	8240	6.3	NA	5.8	NA

DL - Dilution

Katalyst Analytical Technologies, Inc.
QST ST. LOUIS 26694 DATES REPORT

SAMPLE	STATION ID	COLLECT. TIME	RECEIPT	CLASSIFICATION	LEACHATE	EXTRACTION	DAYS, ACT/HT ANALYSIS	LCH	EXT	ANL	BATCH
26694*1	S17 MW4	02/09/98 09:30A	02/10/98	Volatiles	NA	NA	02/17/98 09:54P	NA	NA	8/14	P41038
26694*2	S17 MW4D	02/09/98 09:35A	02/10/98	Volatiles	NA	NA	02/17/98 10:23P	NA	NA	8/14	P41038

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

SAMPLE	SITE ID	ANALYTE	DIL	BATCH
26694*1 DL	S17 MW4	Volatiles	100	P41038
26694*2 DL	S17 MW4D	Volatiles	100	P41038

QUALITY CONTROL SUMMARY REPORTS BY ANALYTICAL BATCH

KATALYST BATCH : P41038
NALYSIS : 8240

QC TYPE : FDER/SW
ANALYST : TROY AVERY
EXTRACTOR :
DATA ENTRY : GCMS UPLOAD

REPORT DATE/TIME : 03/04/98 09:51
ANALYSIS DATE/TIME : 03/01/98
EXTRACT DATE :

STATUS : FINAL

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
8240 WATERS

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
26694	BATCH	110S01 5100	QST ST.LOUIS/BOEING	Daniel Moore

SAMPLE CODE	CLIENT ID	DATE ANALYZED	TIME ANALYZED
DA*26694*1	S17 MW4	02/17/98	09:54PM
DA*26694*2	S17 MW4D	02/17/98	10:23PM
DA*26694*1	S17 MW4	02/20/98	08:33PM
DA*26694*2	S17 MW4D	03/01/98	09:16PM

KATALYST BATCH : P41038

Laboratory Control Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	LCS*I021798*1	34501*8240/5030	1,1-Dichloroethene	UG/L	50.0	56.6	113.2	61-145
02/17/98	LCS*I021798*1	34030*8240/5030	Benzene	UG/L	50.0	54.1	108.2	76-127
02/17/98	LCS*I021798*1	39180*8240/5030	Trichloroethene	UG/L	50.0	52.8	105.6	71-120
02/17/98	LCS*I021798*1	34010*8240/5030	Toluene	UG/L	50.0	54.3	108.6	76-125
02/17/98	LCS*I021798*1	34301*8240/5030	Chlorobenzene	UG/L	50.0	51.7	103.4	75-130
02/20/98	LCS*I022098*1	34501*8240/5030	1,1-Dichloroethene	UG/L	50.0	58.6	117.2	61-145
02/20/98	LCS*I022098*1	34030*8240/5030	Benzene	UG/L	50.0	53.6	107.2	76-127
02/20/98	LCS*I022098*1	39180*8240/5030	Trichloroethene	UG/L	50.0	51.2	102.4	71-120
02/20/98	LCS*I022098*1	34010*8240/5030	Toluene	UG/L	50.0	51.6	103.2	76-125
02/20/98	LCS*I022098*1	34301*8240/5030	Chlorobenzene	UG/L	50.0	49.8	99.6	75-130
03/01/98	LCS*H030198*2	34501*8240/5030	1,1-Dichloroethene	UG/L	50.0	59.0	118.0	61-145
03/01/98	LCS*H030198*2	34030*8240/5030	Benzene	UG/L	50.0	55.3	110.6	76-127
03/01/98	LCS*H030198*2	39180*8240/5030	Trichloroethene	UG/L	50.0	55.6	111.2	71-120
03/01/98	LCS*H030198*2	34010*8240/5030	Toluene	UG/L	50.0	52.4	104.8	76-125
03/01/98	LCS*H030198*2	34301*8240/5030	Chlorobenzene	UG/L	50.0	54.0	108.0	75-130

Method Blank Sample Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/17/98	MB*I021798*1	34418*8240/5030	Chloromethane	UG/L	ND	10.00
02/17/98	MB*I021798*1	39175*8240/5030	Vinyl Chloride	UG/L	ND	10.00
02/17/98	MB*I021798*1	34413*8240/5030	Bromomethane	UG/L	ND	10.00
02/17/98	MB*I021798*1	34311*8240/5030	Chloroethane	UG/L	ND	10.00
02/17/98	MB*I021798*1	34501*8240/5030	1,1-Dichloroethene	UG/L	ND	5.00
02/17/98	MB*I021798*1	77041*8240/5030	Carbon Disulfide	UG/L	ND	5.00
02/17/98	MB*I021798*1	81552*8240/5030	Acetone	UG/L	ND	10.00
02/17/98	MB*I021798*1	34423*8240/5030	Methylene Chloride	UG/L	ND	5.00
02/17/98	MB*I021798*1	34546*8240/5030	trans-1,2-dichloroethene	UG/L	ND	5.00
02/17/98	MB*I021798*1	34496*8240/5030	1,1-Dichloroethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	77057*8240/5030	Vinyl Acetate	UG/L	ND	5.00
02/17/98	MB*I021798*1	77093*8240/5030	cis-1,2-Dichloroethene	UG/L	ND	5.00
02/17/98	MB*I021798*1	81595*8240/5030	2-Butanone	UG/L	ND	10.00
02/17/98	MB*I021798*1	32106*8240/5030	Chloroform	UG/L	ND	5.00
02/17/98	MB*I021798*1	34506*8240/5030	1,1,1-Trichloroethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	32102*8240/5030	Carbon Tetrachloride	UG/L	ND	5.00
02/17/98	MB*I021798*1	34030*8240/5030	Benzene	UG/L	ND	5.00
02/17/98	MB*I021798*1	34531*8240/5030	1,2-Dichloroethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	39180*8240/5030	Trichloroethene	UG/L	0.55	5.00
02/17/98	MB*I021798*1	34541*8240/5030	1,2-Dichloropropane	UG/L	ND	5.00
02/17/98	MB*I021798*1	32101*8240/5030	Bromodichloromethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	34704*8240/5030	cis-1,3-Dichloropropene	UG/L	ND	5.00
02/17/98	MB*I021798*1	81596*8240/5030	4-Methyl-2-pentanone	UG/L	ND	10.00
02/17/98	MB*I021798*1	34010*8240/5030	Toluene	UG/L	ND	5.00
02/17/98	MB*I021798*1	34699*8240/5030	trans-1,3-Dichloropropene	UG/L	ND	5.00
02/17/98	MB*I021798*1	34511*8240/5030	1,1,2-Trichloroethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	34475*8240/5030	Tetrachloroethene	UG/L	0.65	5.00
02/17/98	MB*I021798*1	77103*8240/5030	2-Hexanone	UG/L	ND	10.00
02/17/98	MB*I021798*1	32105*8240/5030	Dibromochloromethane	UG/L	ND	5.00
02/17/98	MB*I021798*1	34301*8240/5030	Chlorobenzene	UG/L	ND	5.00
02/17/98	MB*I021798*1	34371*8240/5030	Ethylbenzene	UG/L	ND	5.00
02/17/98	MB*I021798*1	81551*8240/5030	Xylenes (total)	UG/L	ND	5.00
02/17/98	MB*I021798*1	77128*8240/5030	Styrene	UG/L	ND	5.00
02/17/98	MB*I021798*1	32104*8240/5030	Bromoform	UG/L	ND	5.00
02/17/98	MB*I021798*1	34516*8240/5030	1,1,2,2-Tetrachloroethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	34418*8240/5030	Chloromethane	UG/L	ND	10.00
02/20/98	MB*I022098*1	39175*8240/5030	Vinyl Chloride	UG/L	ND	10.00
02/20/98	MB*I022098*1	34413*8240/5030	Bromomethane	UG/L	ND	10.00
02/20/98	MB*I022098*1	34311*8240/5030	Chloroethane	UG/L	ND	10.00
02/20/98	MB*I022098*1	34501*8240/5030	1,1-Dichloroethene	UG/L	ND	5.00
02/20/98	MB*I022098*1	77041*8240/5030	Carbon Disulfide	UG/L	ND	5.00
02/20/98	MB*I022098*1	81552*8240/5030	Acetone	UG/L	ND	10.00
02/20/98	MB*I022098*1	34423*8240/5030	Methylene Chloride	UG/L	ND	5.00
02/20/98	MB*I022098*1	34546*8240/5030	trans-1,2-dichloroethene	UG/L	ND	5.00
02/20/98	MB*I022098*1	34496*8240/5030	1,1-Dichloroethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	77057*8240/5030	Vinyl Acetate	UG/L	ND	5.00
02/20/98	MB*I022098*1	77093*8240/5030	cis-1,2-Dichloroethene	UG/L	ND	5.00
02/20/98	MB*I022098*1	81595*8240/5030	2-Butanone	UG/L	3.99	10.00
02/20/98	MB*I022098*1	32106*8240/5030	Chloroform	UG/L	ND	5.00
02/20/98	MB*I022098*1	34506*8240/5030	1,1,1-Trichloroethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	32102*8240/5030	Carbon Tetrachloride	UG/L	ND	5.00
02/20/98	MB*I022098*1	34030*8240/5030	Benzene	UG/L	ND	5.00
02/20/98	MB*I022098*1	34531*8240/5030	1,2-Dichloroethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	39180*8240/5030	Trichloroethene	UG/L	0.52	5.00

KATALYST BATCH : P41038

ethod Blank Sample Summary

ATE	SAMPLE	STORET	PARAMETER	UNITS	FOUND	DET LMT
02/20/98	MB*I022098*1	34541*8240/5030	1,2-Dichloropropane	UG/L	ND	5.00
02/20/98	MB*I022098*1	32101*8240/5030	Bromodichloromethane	UG/L	ND	5.00
2/20/98	MB*I022098*1	34704*8240/5030	cis-1,3-Dichloropropene	UG/L	ND	5.00
2/20/98	MB*I022098*1	81596*8240/5030	4-Methyl-2-pentanone	UG/L	ND	10.00
02/20/98	MB*I022098*1	34010*8240/5030	Toluene	UG/L	ND	5.00
02/20/98	MB*I022098*1	34699*8240/5030	trans-1,3-Dichloropropene	UG/L	ND	5.00
2/20/98	MB*I022098*1	34511*8240/5030	1,1,2-Trichloroethane	UG/L	ND	5.00
2/20/98	MB*I022098*1	34475*8240/5030	Tetrachloroethene	UG/L	1.85	5.00
2/20/98	MB*I022098*1	77103*8240/5030	2-Hexanone	UG/L	3.85	10.00
02/20/98	MB*I022098*1	32105*8240/5030	Dibromochloromethane	UG/L	ND	5.00
02/20/98	MB*I022098*1	34301*8240/5030	Chlorobenzene	UG/L	ND	5.00
2/20/98	MB*I022098*1	34371*8240/5030	Ethylbenzene	UG/L	ND	5.00
2/20/98	MB*I022098*1	81551*8240/5030	Xylenes (total)	UG/L	ND	5.00
02/20/98	MB*I022098*1	77128*8240/5030	Styrene	UG/L	ND	5.00
02/20/98	MB*I022098*1	32104*8240/5030	Bromoform	UG/L	ND	5.00
2/20/98	MB*I022098*1	34516*8240/5030	1,1,2,2-Tetrachloroethane	UG/L	ND	5.00
3/01/98	MB*H030198*3	34418*8240/5030	Chloromethane	UG/L	ND	10.00
3/01/98	MB*H030198*3	39175*8240/5030	Vinyl Chloride	UG/L	ND	10.00
03/01/98	MB*H030198*3	34413*8240/5030	Bromomethane	UG/L	ND	10.00
03/01/98	MB*H030198*3	34311*8240/5030	Chloroethane	UG/L	ND	10.00
3/01/98	MB*H030198*3	34501*8240/5030	1,1-Dichloroethene	UG/L	ND	5.00
3/01/98	MB*H030198*3	77041*8240/5030	Carbon Disulfide	UG/L	ND	5.00
03/01/98	MB*H030198*3	81552*8240/5030	Acetone	UG/L	ND	10.00
03/01/98	MB*H030198*3	34423*8240/5030	Methylene Chloride	UG/L	0.89	5.00
3/01/98	MB*H030198*3	34546*8240/5030	trans-1,2-dichloroethene	UG/L	ND	5.00
3/01/98	MB*H030198*3	34496*8240/5030	1,1-Dichloroethane	UG/L	ND	5.00
3/01/98	MB*H030198*3	77057*8240/5030	Vinyl Acetate	UG/L	ND	5.00
03/01/98	MB*H030198*3	77093*8240/5030	cis-1,2-Dichloroethene	UG/L	ND	5.00
03/01/98	MB*H030198*3	81595*8240/5030	2-Butanone	UG/L	2.30	10.00
3/01/98	MB*H030198*3	32106*8240/5030	Chloroform	UG/L	ND	5.00
3/01/98	MB*H030198*3	34506*8240/5030	1,1,1-Trichloroethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	32102*8240/5030	Carbon Tetrachloride	UG/L	ND	5.00
03/01/98	MB*H030198*3	34030*8240/5030	Benzene	UG/L	ND	5.00
3/01/98	MB*H030198*3	34531*8240/5030	1,2-Dichloroethane	UG/L	ND	5.00
3/01/98	MB*H030198*3	39180*8240/5030	Trichloroethene	UG/L	0.67	5.00
3/01/98	MB*H030198*3	34541*8240/5030	1,2-Dichloropropane	UG/L	ND	5.00
03/01/98	MB*H030198*3	32101*8240/5030	Bromodichloromethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	34704*8240/5030	cis-1,3-Dichloropropene	UG/L	ND	5.00
3/01/98	MB*H030198*3	81596*8240/5030	4-Methyl-2-pentanone	UG/L	ND	10.00
3/01/98	MB*H030198*3	34010*8240/5030	Toluene	UG/L	ND	5.00
03/01/98	MB*H030198*3	34699*8240/5030	trans-1,3-Dichloropropene	UG/L	ND	5.00
03/01/98	MB*H030198*3	34511*8240/5030	1,1,2-Trichloroethane	UG/L	ND	5.00
3/01/98	MB*H030198*3	34475*8240/5030	Tetrachloroethene	UG/L	0.97	5.00
3/01/98	MB*H030198*3	77103*8240/5030	2-Hexanone	UG/L	2.42	10.00
3/01/98	MB*H030198*3	32105*8240/5030	Dibromochloromethane	UG/L	ND	5.00
03/01/98	MB*H030198*3	34301*8240/5030	Chlorobenzene	UG/L	ND	5.00
03/01/98	MB*H030198*3	34371*8240/5030	Ethylbenzene	UG/L	ND	5.00
3/01/98	MB*H030198*3	81551*8240/5030	Xylenes (total)	UG/L	ND	5.00
3/01/98	MB*H030198*3	77128*8240/5030	Styrene	UG/L	ND	5.00
03/01/98	MB*H030198*3	32104*8240/5030	Bromoform	UG/L	ND	5.00
03/01/98	MB*H030198*3	34516*8240/5030	1,1,2,2-Tetrachloroethane	UG/L	ND	5.00

ample Matrix Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	UNSPIKED	TARGET	FOUND	%RECV	CRIT	RPD	CRIT
02/17/98	SPM1*26682*10	34501	1,1-Dichloroethene	UG/L	177	50.0	39.0	78.0	61-145		
2/17/98	SPM1*26682*10	34030	Benzene	UG/L	21.3	50.0	50.8	101.6	76-127		
2/17/98	**SPM1*26682*10**	**39180**	**Trichloroethene**	**UG/L**	**4500**	**50.0**	**-290**	**N/C**	**71-120**		
02/17/98	**SPM1*26682*10**	**34010**	**Toluene**	**UG/L**	**1210**	**50.0**	**-30.0**	**N/C**	**76-125**		
02/17/98	SPM1*26682*10	34301	Chlorobenzene	UG/L	0.0	50.0	50.9	101.8	75-130		
2/17/98	SPM2*26682*10	34501	1,1-Dichloroethene	UG/L	177	50.0	43.0	86.0	61-145	9.80	14
2/17/98	SPM2*26682*10	34030	Benzene	UG/L	21.3	50.0	54.5	109.0	76-127	7.00	11
2/17/98	**SPM2*26682*10**	**39180**	**Trichloroethene**	**UG/L**	**4500**	**50.0**	**-270**	**N/C**	**71-120**		
02/17/98	**SPM2*26682*10**	**34010**	**Toluene**	**UG/L**	**1210**	**50.0**	**-40.0**	**N/C**	**76-125**		
02/17/98	SPM2*26682*10	34301	Chlorobenzene	UG/L	0.0	50.0	53.7	107.4	75-130	5.40	13

urrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
2/17/98	DA*26694*1	98812*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/L	50	53	110	76-114
2/17/98	DA*26694*1	98810*SUR	TOLUENE-D8 (SW846)	UG/L	50	50	100	76-149
2/17/98	DA*26694*1	28941*SUR	4-BROMOFLUOROBENZENE	UG/L	50	49	98	73-118
02/17/98	DA*26694*2	98812*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/L	50	52	100	76-114

/C - Not Calculated

KATALYST BATCH : P41038

Surrogate Spike Recovery Summary

DATE	SAMPLE	STORET	PARAMETER	UNITS	TARGET	FOUND	%RECV	RECV CRIT
02/17/98	DA*26694*2	98810*SUR	TOLUENE-D8 (SW846)	UG/L	50	50	100	76-149
02/17/98	DA*26694*2	28941*SUR	4-BROMOFLUOROBENZENE	UG/L	50	49	98	73-118
02/20/98	DA*26694*1*D	98812*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/L	50	52	100	76-114
02/20/98	DA*26694*1*D	98810*SUR	TOLUENE-D8 (SW846)	UG/L	50	48	96	76-149
02/20/98	DA*26694*1*D	28941*SUR	4-BROMOFLUOROBENZENE	UG/L	50	53	110	73-118
03/01/98	DA*26694*2*D	98812*SUR	1,2-DICHLOROETHANE-D4 (SW846)	UG/L	50	50	100	76-114
03/01/98	DA*26694*2*D	98810*SUR	TOLUENE-D8 (SW846)	UG/L	50	45	90	76-149
03/01/98	DA*26694*2*D	28941*SUR	4-BROMOFLUOROBENZENE	UG/L	50	51	100	73-118

KATALYST BATCH : P41038

Katalyst Analytical Technologies, Inc.
Computer QC Checks

Batch No.: P41038 Analysis Date: 03/01/98 Analyst: TROY AVERY Report Date: 03/04/98

	Yes	No	
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
LCS present?	X		
LCS within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	39180*8240/5030 34010*8240/5030
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?		X	39180*8240/5030 34010*8240/5030
Surrogate present?	X		
Surrogate within acceptance criteria?		X	28941*SUR

BATCH OVERRIDE BY: MIKE TRAVIS 1003

FINALIZED BY: BATCH FINALIZE 15

CHAIN OF CUSTODY DOCUMENTATION

Environmental Science & Engineering, Inc.
A GILCORP Company
11665 Lilburn Park Road, St. Louis, MO 63146-3535
Telephone: (314) 567-4600 -- Fax: (314) 567-5030

FOR LAB USE ONLY

Project Number: _____

Chain of Custody Record

Client: QST
Address: 11665 Lilburn Park St. Louis, MO 63146
Phone #: 314 567 4600 Fax #: ( ) -
P.O. #:
Client Contact: Scott George
Project # / Location: Boeing

Sample Type:
1. Water
2. Soil
3. Sludge
4. Oil
5. Tissue
Other : _____

Container Type:
P - Plastic
G - Glass
V - VOC

Preservative:
1. None 4. NaOH
2. H2SO4 5. HCl
3. HNO3

Sample I.D. (10 Characters ONLY)	Sample Type	Container Size	Container Type	Container No.	Sampling Date	Sampling Time	Preservative	Lab I.D.	Analyses: VOCs	Analyses: pH	Analyses: Specific Conductivity	Analyses: Temperature	Comments
S17MW4	Water	40mL	G	4	2-9-98	0930	HCL	26694 x4	X				Run 2 amber, there are 2 extra
S17MW4D	Water	40mL	G	2	2-9-98	0935	HCL	x2	X				

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Scott George	2-9-98	1800		-- --	:
Relinquished By:	Date: -- --	Time: :	Received For Lab By:	Date: 2-10-98	Time: 10:30

FOR LAB USE ONLY
Samples Received Chilled ☒ Yes ☐ No 5 °C

SPECIAL INSTRUCTIONS:

Copies: White - Client Canary - Lab Receiving Pink - Lab File Goldenrod - Retained by Sampler

KATALYST

ANALYTICAL TECHNOLOGIES, INC.

May 18, 1998

Mr. Scott George
QST Environmental
11665 Lilburn Park Road
St. Louis, MO 63146

Dear Mr. George,

Katalyst Analytical Technologies, Inc., appreciates the opportunity to provide the attached report of analyses for Katalyst sample delivery group #26994, received 04/22/98 by our laboratory. This deliverable includes tabulated results, chain of custody and dates report.

Should you have any questions regarding this data, please contact me at (309) 589-8004.

Sincerely,

KATALYST ANALYTICAL TECHNOLOGIES, INC.

Dan Moore
Project Manager

Attachments

8901 N. Industrial Road • Suite 100 • Peoria, IL 61615-1581 • Phone: (309) 589-8000 • Fax: (309) 692-5232 • www.katalyst1.com

CLIENT SAMPLE ID'S:			S17B10 4'-5'	S17B10 14'-15'	S17B9 26'-27'	17B9 26'-27'DL	S17B9 26'-27'
FIELD GROUP:			26994	26994	26994	26994	26994
SEQUENCE #:			1	4	6	6 DL	7
DATE COLLECTED:			04/20/98	04/20/98	04/21/98	04/21/98	04/21/98
TIME COLLECTED:			15:07	15:50	09:55	09:55	09:55
PARAMETERS	UNITS	METHOD					
Chloromethane	UG/KG-DRY	8240	<13	<15	<12	NA	<12
Bromomethane	UG/KG-DRY	8240	<13	<15	<12	NA	<12
Vinyl Chloride	UG/KG-DRY	8240	<13	<15	<12	NA	<12
Chloroethane	UG/KG-DRY	8240	<13	<15	<12	NA	<12
Methylene Chloride	UG/KG-DRY	8240	24	69	19B	NA	26B
Acetone	UG/KG-DRY	8240	26	180	39	NA	48
Carbon Disulfide	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
1,1-Dichloroethene	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
1,1-Dichloroethane	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
trans-1,2-Dichloroethene	UG/KG-DRY	8240	<6.3	24	<6.2	NA	<6.2
Chloroform	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
1,2-Dichloroethane	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
2-Butanone	UG/KG-DRY	8240	<13	50	<12	NA	<12
1,1,1-Trichloroethane	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
Carbon Tetrachloride	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
Vinyl Acetate	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
Bromodichloromethane	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
1,2-Dichloropropane	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
cis-1,3-Dichloropropene	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
Trichloroethene	UG/KG-DRY	8240	9.3	28	10000E	12000	22000E
Dibromochloromethane	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
1,1,2-Trichloroethane	UG/KG-DRY	8240	<6.3	<7.4	180	NA	380
Benzene	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
trans-1,3-Dichloropropene	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
Bromoform	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
4-Methyl-2-pentanone	UG/KG-DRY	8240	<13	<15	<12	NA	<12
2-Hexanone	UG/KG-DRY	8240	<13	<15	<12	NA	<12
Tetrachloroethene	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
1,1,2,2-Tetrachloroethane	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
Toluene	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2

DL - Dilution
E - Result exceeds calibration range
B - Analyte also found in the laboratory method blank

CLIENT SAMPLE ID'S:			S17B10 4'-5'	S17B10 14'-15'	S17B9 26'-27'	17B9 26'-27'DL	S17B9 26'-27'
FIELD GROUP:			26994	26994	26994	26994	26994
SEQUENCE #:			1	4	6	6 DL	7
DATE COLLECTED:			04/20/98	04/20/98	04/21/98	04/21/98	04/21/98
TIME COLLECTED:			15:07	15:50	09:55	09:55	09:55
PARAMETERS	UNITS	METHOD					
Chlorobenzene	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
Ethylbenzene	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
Styrene	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
Xylenes (total)	UG/KG-DRY	8240	<6.3	<7.4	<6.2	NA	<6.2
cis-1,2-Dichloroethene	UG/KG-DRY	8240	<6.3	<7.4	160	NA	110
Moisture	%	E160.3	21	32	20	NA	20

NA - Sample Not Analyzed
DL - Dilution

CLIENT SAMPLE ID'S:			17B9 26'-27'DL	S17B9 34'-35'	17B9 34'-35'DL	S17B9 41'-42'	17B9 41'-42'DL
FIELD GROUP:			26994	26994	26994	26994	26994
SEQUENCE #:			7 DL	8	8 DL	10	10 DL
DATE COLLECTED:			04/21/98	04/21/98	04/21/98	04/21/98	04/21/98
TIME COLLECTED:			09:55	10:15	10:15	11:50	11:50
PARAMETERS	UNITS	METHOD					
Chloromethane	UG/KG-DRY	8240	NA	<12	NA	<13	NA
Bromomethane	UG/KG-DRY	8240	NA	<12	NA	<13	NA
Vinyl Chloride	UG/KG-DRY	8240	NA	<12	NA	<13	NA
Chloroethane	UG/KG-DRY	8240	NA	<12	NA	<13	NA
Methylene Chloride	UG/KG-DRY	8240	NA	22B	NA	18B	NA
Acetone	UG/KG-DRY	8240	NA	40	NA	16	NA
Carbon Disulfide	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
1,1-Dichloroethene	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
1,1-Dichloroethane	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
trans-1,2-Dichloroethene	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
Chloroform	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
1,2-Dichloroethane	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
2-Butanone	UG/KG-DRY	8240	NA	<12	NA	<13	NA
1,1,1-Trichloroethane	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
Carbon Tetrachloride	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
Vinyl Acetate	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
Bromodichloromethane	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
1,2-Dichloropropane	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
cis-1,3-Dichloropropene	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
Trichloroethene	UG/KG-DRY	8240	8200	NA	39	4000E	1800
Dibromochloromethane	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
1,1,2-Trichloroethane	UG/KG-DRY	8240	NA	18	NA	<6.5	NA
Benzene	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
trans-1,3-Dichloropropene	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
Bromoform	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
4-Methyl-2-pentanone	UG/KG-DRY	8240	NA	<12	NA	<13	NA
2-Hexanone	UG/KG-DRY	8240	NA	<12	NA	<13	NA
Tetrachloroethene	UG/KG-DRY	8240	NA	<6.2	NA	8.0	NA
1,1,2,2-Tetrachloroethane	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
Toluene	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA

DL - Dilution
E - Result exceeds calibration range
B - Analyte also found in the laboratory method blank

CLIENT SAMPLE ID'S:			17B9 26'-27'DL	S17B9 34'-35'	17B9 34'-35'DL	S17B9 41'-42'	17B9 41'-42'DL
FIELD GROUP:			26994	26994	26994	26994	26994
SEQUENCE #:			7 DL	8	8 DL	10	10 DL
DATE COLLECTED:			04/21/98	04/21/98	04/21/98	04/21/98	04/21/98
TIME COLLECTED:			09:55	10:15	10:15	11:50	11:50
PARAMETERS	UNITS	METHOD					
Chlorobenzene	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
Ethylbenzene	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
Styrene	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
Xylenes (total)	UG/KG-DRY	8240	NA	<6.2	NA	<6.5	NA
cis-1,2-Dichloroethene	UG/KG-DRY	8240	NA	<6.2	NA	13	NA
Moisture	%	E160.3	NA	19	NA	23	NA

NA - Sample Not Analyzed
DL - Dilution

CLIENT SAMPLE ID'S:			S17B9 44'-45'	17B9 44'-45'DL
FIELD GROUP:			26994	26994
SEQUENCE #:			11	11 DL
DATE COLLECTED:			04/21/98	04/21/98
TIME COLLECTED:			11:50	11:50
PARAMETERS	UNITS	METHOD		
Chloromethane	UG/KG-DRY	8240	<13	NA
Bromomethane	UG/KG-DRY	8240	<13	NA
Vinyl Chloride	UG/KG-DRY	8240	<13	NA
Chloroethane	UG/KG-DRY	8240	<13	NA
Methylene Chloride	UG/KG-DRY	8240	16B	NA
Acetone	UG/KG-DRY	8240	34	NA
Carbon Disulfide	UG/KG-DRY	8240	<6.5	NA
1,1-Dichloroethene	UG/KG-DRY	8240	<6.5	NA
1,1-Dichloroethane	UG/KG-DRY	8240	<6.5	NA
trans-1,2-Dichloroethene	UG/KG-DRY	8240	<6.5	NA
Chloroform	UG/KG-DRY	8240	<6.5	NA
1,2-Dichloroethane	UG/KG-DRY	8240	<6.5	NA
2-Butanone	UG/KG-DRY	8240	<13	NA
1,1,1-Trichloroethane	UG/KG-DRY	8240	<6.5	NA
Carbon Tetrachloride	UG/KG-DRY	8240	<6.5	NA
Vinyl Acetate	UG/KG-DRY	8240	<6.5	NA
Bromodichloromethane	UG/KG-DRY	8240	<6.5	NA
1,2-Dichloropropane	UG/KG-DRY	8240	<6.5	NA
cis-1,3-Dichloropropene	UG/KG-DRY	8240	<6.5	NA
Trichloroethene	UG/KG-DRY	8240	6100E	7900
Dibromochloromethane	UG/KG-DRY	8240	<6.5	NA
1,1,2-Trichloroethane	UG/KG-DRY	8240	<6.5	NA
Benzene	UG/KG-DRY	8240	<6.5	NA
trans-1,3-Dichloropropene	UG/KG-DRY	8240	<6.5	NA
Bromoform	UG/KG-DRY	8240	<6.5	NA
4-Methyl-2-pentanone	UG/KG-DRY	8240	<13	NA
2-Hexanone	UG/KG-DRY	8240	<13	NA
Tetrachloroethene	UG/KG-DRY	8240	8.1	NA
1,1,2,2-Tetrachloroethane	UG/KG-DRY	8240	<6.5	NA
Toluene	UG/KG-DRY	8240	<6.5	NA

DL - Dilution
E - Result exceeds calibration range
B - Analyte also found in the laboratory method blank

CLIENT SAMPLE ID'S:			S17B9 44'-45'	17B9 44'-45'DL
FIELD GROUP:			26994	26994
SEQUENCE #:			11	11 DL
DATE COLLECTED:			04/21/98	04/21/98
TIME COLLECTED:			11:50	11:50
PARAMETERS	UNITS	METHOD		
Chlorobenzene	UG/KG-DRY	8240	<6.5	NA
Ethylbenzene	UG/KG-DRY	8240	<6.5	NA
Styrene	UG/KG-DRY	8240	<6.5	NA
Xylenes (total)	UG/KG-DRY	8240	<6.5	NA
cis-1,2-Dichloroethene	UG/KG-DRY	8240	17	NA
Moisture	%	E160.3	23	NA

NA - Sample Not Analyzed
DL - Dilution

CLIENT SAMPLE ID'S:			S17B10 9'-10'	S17B9 37'-38'
FIELD GROUP:			26994	26994
SEQUENCE #:			2	9
DATE COLLECTED:			04/20/98	04/21/98
TIME COLLECTED:			15:22	11:35
PARAMETERS	UNITS	METHOD		
HOLD SAMPLE			04-22-98	04-22-98

CLIENT SAMPLE ID'S:	S17B10 10.5'-11.5'
FIELD GROUP:	26994
SEQUENCE #:	3
DATE COLLECTED:	04/20/98
TIME COLLECTED:	15:45

PARAMETERS	UNITS	METHOD	
Chloromethane	UG/KG-DRY	8240	<13
Bromomethane	UG/KG-DRY	8240	<13
Vinyl Chloride	UG/KG-DRY	8240	<13
Chloroethane	UG/KG-DRY	8240	<13
Methylene Chloride	UG/KG-DRY	8240	<6.3
Acetone	UG/KG-DRY	8240	<13
Carbon Disulfide	UG/KG-DRY	8240	<6.3
1,1-Dichloroethene	UG/KG-DRY	8240	<6.3
1,1-Dichloroethane	UG/KG-DRY	8240	<6.3
trans-1,2-Dichloroethene	UG/KG-DRY	8240	<6.3
Chloroform	UG/KG-DRY	8240	<6.3
1,2-Dichloroethane	UG/KG-DRY	8240	<6.3
2-Butanone	UG/KG-DRY	8240	<13
1,1,1-Trichloroethane	UG/KG-DRY	8240	<6.3
Carbon Tetrachloride	UG/KG-DRY	8240	<6.3
Vinyl Acetate	UG/KG-DRY	8240	<6.3
Bromodichloromethane	UG/KG-DRY	8240	<6.3
1,2-Dichloropropane	UG/KG-DRY	8240	<6.3
cis-1,3-Dichloropropene	UG/KG-DRY	8240	<6.3
Trichloroethene	UG/KG-DRY	8240	64
Dibromochloromethane	UG/KG-DRY	8240	<6.3
1,1,2-Trichloroethane	UG/KG-DRY	8240	<6.3
Benzene	UG/KG-DRY	8240	<6.3
trans-1,3-Dichloropropene	UG/KG-DRY	8240	<6.3
Bromoform	UG/KG-DRY	8240	<6.3
4-Methyl-2-pentanone	UG/KG-DRY	8240	<13
2-Hexanone	UG/KG-DRY	8240	<13
Tetrachloroethene	UG/KG-DRY	8240	<6.3
1,1,2,2-Tetrachloroethane	UG/KG-DRY	8240	<6.3
Toluene	UG/KG-DRY	8240	<6.3

CLIENT SAMPLE ID'S:	S17B10 10.5'-11.5'
FIELD GROUP:	26994
SEQUENCE #:	3
DATE COLLECTED:	04/20/98
TIME COLLECTED:	15:45

PARAMETERS	UNITS	METHOD	
Chlorobenzene	UG/KG-DRY	8240	<6.3
Ethylbenzene	UG/KG-DRY	8240	<6.3
Styrene	UG/KG-DRY	8240	<6.3
Xylenes (total)	UG/KG-DRY	8240	<6.3
cis-1,2-Dichloroethene	UG/KG-DRY	8240	<6.3
Moisture	%	E160.3	21
TOC	MG/KG-DRY	9060	27B

B - Analyte also found in the laboratory method blank

CLIENT SAMPLE ID'S:			S17 W6	S17 W6DL
FIELD GROUP:			26994	26994
SEQUENCE #:			5	5 DL
DATE COLLECTED:			04/21/98	04/21/98
TIME COLLECTED:			09:15	09:15
PARAMETERS	UNITS	METHOD		
Chloromethane	UG/L	8240	<10	NA
Bromomethane	UG/L	8240	<10	NA
Vinyl Chloride	UG/L	8240	940	NA
Chloroethane	UG/L	8240	<10	NA
Methylene Chloride	UG/L	8240	5.5B	NA
Acetone	UG/L	8240	18	NA
Carbon Disulfide	UG/L	8240	<5.0	NA
1,1-Dichloroethene	UG/L	8240	9.3	NA
1,1-Dichloroethane	UG/L	8240	<5.0	NA
trans-1,2-dichloroethene	UG/L	8240	55	NA
Chloroform	UG/L	8240	<5.0	NA
1,2-Dichloroethane	UG/L	8240	<5.0	NA
2-Butanone	UG/L	8240	<10	NA
1,1,1-Trichloroethane	UG/L	8240	<5.0	NA
Carbon Tetrachloride	UG/L	8240	<5.0	NA
Vinyl Acetate	UG/L	8240	<5.0	NA
Bromodichloromethane	UG/L	8240	<5.0	NA
1,2-Dichloropropane	UG/L	8240	<5.0	NA
cis-1,3-Dichloropropene	UG/L	8240	<5.0	NA
Trichloroethene	UG/L	8240	320E	370
Dibromochloromethane	UG/L	8240	<5.0	NA
1,1,2-Trichloroethane	UG/L	8240	<5.0	NA
Benzene	UG/L	8240	<5.0	NA
trans-1,3-Dichloropropene	UG/L	8240	<5.0	NA
Bromoform	UG/L	8240	<5.0	NA
4-Methyl-2-pentanone	UG/L	8240	<10	NA
2-Hexanone	UG/L	8240	<10	NA
Tetrachloroethene	UG/L	8240	<5.0	NA
1,1,2,2-Tetrachloroethane	UG/L	8240	<5.0	NA
Toluene	UG/L	8240	<5.0	NA

DL - Dilution
E - Result exceeds calibration range
B - Analyte also found in the laboratory method blank

CLIENT SAMPLE ID'S:			S17 W6	S17 W6DL
FIELD GROUP:			26994	26994
SEQUENCE #:			5	5 DL
DATE COLLECTED:			04/21/98	04/21/98
TIME COLLECTED:			09:15	09:15
PARAMETERS	UNITS	METHOD		
Chlorobenzene	UG/L	8240	<5.0	NA
Ethylbenzene	UG/L	8240	<5.0	NA
Styrene	UG/L	8240	<5.0	NA
Xylenes (total)	UG/L	8240	<5.0	NA
cis-1,2-Dichloroethene	UG/L	8240	2500E	4000

DL - Dilution
E - Result exceeds calibration range

Katalyst Analytical Technologies, Inc.
QST ST. LOUIS 26994 DATES REPORT

SAMPLE	STATION ID	COLLECT. TIME	RECEIPT	CLASSIFICATION	LEACHATE	EXTRACTION	DAYS, ACT/HT ANALYSIS	LCH	EXT	ANL	BATCH
26994*1	S17B10 4'-5'	04/20/98 03:07P	04/22/98	Volatiles	NA	NA	05/01/98 06:51P	NA	NA	11/14	P41836
				Moisture	NA	NA	05/06/98 11:15A	NA	NA	15/180	P41795
26994*2	S17B10 9'-10'	04/20/98 03:22P	04/22/98	HOLD SAMPLE	NA	NA	11:15A	NA	NA	/NA	
26994*3	S17B10 10.5'-11.5'	04/20/98 03:45P	04/22/98	Volatiles	NA	NA	05/01/98 02:28P	NA	NA	10/14	P41836
				Moisture	NA	NA	05/06/98 11:15A	NA	NA	15/180	P41795
				Carbon(TOC)	NA	NA	11:15A	NA	NA	/28	
26994*4	S17B10 14'-15'	04/20/98 03:50P	04/22/98	Volatiles	NA	NA	05/04/98 05:58P	NA	NA	14/14	P41836
				Moisture	NA	NA	05/06/98 11:15A	NA	NA	15/180	P41795
26994*5	S17 W6	04/21/98 09:15A	04/22/98	Volatiles	NA	NA	05/04/98 02:53P	NA	NA	13/14	P41838
26994*6	S17B9 26'-27'	04/21/98 09:55A	04/22/98	Volatiles	NA	NA	05/01/98 03:26P	NA	NA	10/14	P41836
				Moisture	NA	NA	05/06/98 11:15A	NA	NA	15/180	P41795
26994*7	S17B9 26'-27'	04/21/98 09:55A	04/22/98	Volatiles	NA	NA	05/01/98 03:55P	NA	NA	10/14	P41836
				Moisture	NA	NA	05/06/98 11:15A	NA	NA	15/180	P41795
26994*8	S17B9 34'-35'	04/21/98 10:15A	04/22/98	Volatiles	NA	NA	05/01/98 04:24P	NA	NA	10/14	P41836
				Moisture	NA	NA	05/06/98 11:15A	NA	NA	15/180	P41795
26994*9	S17B9 37'-38'	04/21/98 11:35A	04/22/98	HOLD SAMPLE	NA	NA	11:15A	NA	NA	/NA	
26994*10	S17B9 41'-42'	04/21/98 11:50A	04/22/98	Volatiles	NA	NA	05/01/98 04:54P	NA	NA	10/14	P41836
				Moisture	NA	NA	05/06/98 11:15A	NA	NA	14/180	P41795
26994*11	S17B9 44'-45'	04/21/98 11:50A	04/22/98	Volatiles	NA	NA	05/01/98 05:23P	NA	NA	10/14	P41836
				Moisture	NA	NA	05/06/98 11:15A	NA	NA	14/180	P41795

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

Environmental Science & Engineering, Inc.
A CILCORP Company
11665 Lilburn Park Road, St. Louis, MO 63146-3535
Telephone: (314) 567-4600 -- Fax: (314) 567-5030

FOR LAB USE ONLY

Project Number: _____

Chain of Custody Record

Client: QST

Address: 11665 Lilburn Park Rd
St. Louis, MO 63146

Phone #: 314.567.4600 Fax #: (__)___-____

P.O. #: _____

Client Contact: Scott George

Project # / Location: Boeing / 5197-042

Sample Type:
1. Water
2. Soil
3. Sludge
4. Oil
5. Tissue
Other : _____

Container Type:
P - Plastic
G - Glass
V - VOC

Preservative:
1. None 4. NaOH
2. H2SO4 5. HCl
3. HNO3

Sample I.D. (10 Characters ONLY)	Sample Type	Container Size	Container Type	Container No.	Sampling Date	Sampling Time	Preservative	Lab I.D.	Analyses: VOCs	pH	Specific Conductivity	Temperature	Comments
S17B10 4'-5'	Soil	8oz	G	1	4-20-98	1507	cool	26944*1	X				
S17B10 9'-10'	Soil	8oz	G	2	4-20-98	1522	↓	*2	X				
S17B10 10.5'-11.5'	Soil	8oz	G	2	4-20-98	1545	↓	*3	X				
S17B10 14'-15'	Soil	8oz	G	1	4-20-98	1550	↓	*4	X				
S17W5	Water	2-40mL 2-liter	G	3	4-21-98	0915	cool	*5	X				
~~S17D~~S17W6	Water	11	G	3			↓						
S17B9 26'-27'	Soil	8oz	↓	1	4-21-98	0955	↓	*6,*7	X				
S17B9 34'-35'	Soil	8oz		1	4-21-98	1015		*8	X				
S17B9 37'-38'	Soil	8oz		1	4-21-98	1135		*9	X				
S17B9 41'-42'	Soil	8oz		1	4-21-98	1150		*10	X				
S17B9 44'-45'	Soil	8oz	↓	1	4-21-98	1150	↓	*11	X				

Relinquished By: Scott George
Date: 4-21-98
Time: 18:00

Received By:
Date: -- --
Time: :

Relinquished By:
Date: -- --
Time: :

Received For Lab By:
Date: 4-22-98
Time: 08:40

FOR LAB USE ONLY
Samples Received Chilled
☐ Yes ☐ No
_____ °C

SPECIAL INSTRUCTIONS:

Copies: White - Client Canary - Lab Receiving Pink - Lab File Goldenrod - Retained by Sampler

Environmental Science & Engineering, Inc.
11665 Lilburn Park Road, St. Louis, MO 63146-3535
Telephone: (314) 567-4600 -- Fax: (314) 567-5030

FOR LAB USE ONLY
Folder Number:

0039

Chain of Custody Record

Client: QST
Address: 11665 Lilburn Park Rd
St. Louis, MO 63146
Phone #: 314-567-4600 Fax #: (__) ___-____
P.O. #:
Client Contact: Scott George
Project # / Location: Boeing / 5197-042

Sample Type: 1. Water 2. Soil 3. Sludge 4. Oil 5. Tissue Other: ____
Container Type: P - Plastic G - Glass V - VOC
Preservative: 1. None 2. H_2SO_4 4. NaOH 5. HCl 3. HNO_3

Sample I.D. (10 Characters ONLY)	Sample Type	Container Size	Container Type	Container No.	Sampling Date	Sampling Time	Preservative	Lab I.D.	VOCs	TOC	pH	Specific Conductivity	Temperature	Comments
517B10 4'-5'	Soil	8oz	G	1	4-20-98	1507	cool		X	✓				
517B10 9'-10'	Soil	8oz	G	2	4-20-98	1522	↓		X	✓				Don't Analyze
517B10 10.5'-11.5'	Soil	8oz	G	2	4-20-98	1545			X	✓				
517B10 14'-15'	Soil	8oz	G	1	4-20-98	1550	↓		X	✓				Add TOC by 9060
517 WS 6	Water	2-40ml 2-liter	G	3	4-21-98	0915	cool		X					Change well I.D. from 5 to 6
~~517WS6~~	~~Water~~	~~4~~	~~G~~	~~3~~										
517B926'-27'	Soil	8oz		1	4-21-98	0955			X	✓				
517B934'-35'	Soil	8oz		1	4-21-98	1015			X	✓				
517B937'-38'	Soil	8oz		1	4-21-98	1135			X	✓				Don't Analyze
517B941'-42'	Soil	8oz		1	4-21-98	1150			X	✓				
517B944'-45'	Soil	8oz	↓	1	4-21-98	1150	↓		X	✓				

Relinquished By: Scott George
Date: 4-21-98 Time: 1800
Received By:
Date: -- -- Time: :

Relinquished By:
Date: -- -- Time: :
Received For Lab By:
Date: -- -- Time: :

FOR LAB USE ONLY
Remarks Received Chilled
Y / N Y / N

SPECIAL INSTRUCTIONS:

Don't run for TPH OA-1/OA-2

** Please double run 517B926'-27' as a duplicate

Copies: White - Client Canary - Lab Receiving Pink - Lab File Goldenrod - Retained by Sampler

KATALYST

ANALYTICAL TECHNOLOGIES, INC.

May 18, 1998

Mr. Scott George
QST Environmental
11665 Lilburn Park Road
St. Louis, MO 63146

Dear Mr. George,

Katalyst Analytical Technologies, Inc., appreciates the opportunity to provide the attached report of analyses for Katalyst sample delivery group #26996, received 04/23/98 by our laboratory. This deliverable includes tabulated results, chain of custody and dates report.

Should you have any questions regarding this data, please contact me at (309) 589-8004.

Sincerely,

KATALYST ANALYTICAL TECHNOLOGIES, INC.

Dan Moore
Project Manager

Attachments

8901 N. Industrial Road • Suite 100 • Peoria, IL 61615-1581 • Phone: (309) 589-8000 • Fax: (309) 692-5232 • www.katalyst1.com

PROJECT NUMBER 110S01 5100 PROJECT NAME QST ST. LOUIS/BOEING
FIELD GROUP LAB COORDINATOR Daniel Moore

CLIENT SAMPLE ID'S:			MW5	MW5DL
FIELD GROUP:			26996	26996
SEQUENCE #:			1	1 DL
DATE COLLECTED:			04/22/98	04/22/98
TIME COLLECTED:			12:25	12:25
PARAMETERS	UNITS	METHOD		
Chloromethane	UG/L	8240	<10	NA
Bromomethane	UG/L	8240	<10	NA
Vinyl Chloride	UG/L	8240	250	NA
Chloroethane	UG/L	8240	<10	NA
Methylene Chloride	UG/L	8240	7.5B	NA
Acetone	UG/L	8240	<10	NA
Carbon Disulfide	UG/L	8240	<5.0	NA
1,1-Dichloroethene	UG/L	8240	25	NA
1,1-Dichloroethane	UG/L	8240	<5.0	NA
trans-1,2-dichloroethene	UG/L	8240	26	NA
Chloroform	UG/L	8240	<5.0	NA
1,2-Dichloroethane	UG/L	8240	<5.0	NA
2-Butanone	UG/L	8240	<10	NA
1,1,1-Trichloroethane	UG/L	8240	<5.0	NA
Carbon Tetrachloride	UG/L	8240	<5.0	NA
Vinyl Acetate	UG/L	8240	<5.0	NA
Bromodichloromethane	UG/L	8240	<5.0	NA
1,2-Dichloropropane	UG/L	8240	<5.0	NA
cis-1,3-Dichloropropene	UG/L	8240	<5.0	NA
Trichloroethene	UG/L	8240	13000E	140000
Dibromochloromethane	UG/L	8240	<5.0	NA
1,1,2-Trichloroethane	UG/L	8240	290	NA
Benzene	UG/L	8240	<5.0	NA
trans-1,3-Dichloropropene	UG/L	8240	<5.0	NA
Bromoform	UG/L	8240	<5.0	NA
4-Methyl-2-pentanone	UG/L	8240	<10	NA
2-Hexanone	UG/L	8240	<10	NA
Tetrachloroethene	UG/L	8240	<5.0	NA
1,1,2,2-Tetrachloroethane	UG/L	8240	<5.0	NA
Toluene	UG/L	8240	<5.0	NA

DL - Dilution
E - Result exceeds calibration range
B - Analyte also found in laboratory method blank

CLIENT SAMPLE ID'S:			MW5	MW5DL
FIELD GROUP:			26996	26996
SEQUENCE #:			1	1 DL
DATE COLLECTED:			04/22/98	04/22/98
TIME COLLECTED:			12:25	12:25
PARAMETERS	UNITS	METHOD		
Chlorobenzene	UG/L	8240	<5.0	NA
Ethylbenzene	UG/L	8240	<5.0	NA
Styrene	UG/L	8240	<5.0	NA
Xylenes (total)	UG/L	8240	<5.0	NA
cis-1,2-Dichloroethene	UG/L	8240	2900E	5500

DL - Dilution
E - Result exceeds calibration range

Katalyst Analytical Technologies, Inc.
QST ST. LOUIS 26996 DATES REPORT

SAMPLE	STATION ID	COLLECT. TIME	RECEIPT	CLASSIFICATION	LEACHATE	EXTRACTION	DAYS, ACT/HT ANALYSIS	LCH	EXT	ANL	BATCH
26996*1	MW5	04/22/98 12:25P	04/23/98	Volatiles	NA	NA	05/04/98 03:22P	NA	NA	12/14	P41838

FOOTNOTES: * = EXCEEDS CRITERIA ACT = ACTUAL HT = HOLDING TIME

SAMPLE.....	SITE ID.....	ANALYTE.....	DIL.....	BATCH
26996*1	MW5	Volatiles	100	P41838
26996*1 DL	MW5	Volatiles	1000	P41838

KATALYST
ANALYTICAL TECHNOLOGIES, INC.

8901 N. Industrial Road • Suite 100 • Peoria, IL 61615
Phone: (309) 589-8000 • Fax: (309) 692-5232

FOR LAB USE ONLY
Project Number: ____-____
Due Date: ____-____-____

Chain of Custody Record

18948

Company: QST
Address: 11665 Lilburn Park
St. Louis, MO 63146

Phone #: 314 567-4600 Fax #: (__)____-____
P.O. #:
Client Contact: Scott George
Project # / Location: Boeing / 5197-042

Sample Type:
1. Water
2. Soil
3. Sludge
4. Oil
5. Tissue
Other : ____

Container Type:
P - Plastic
G - Glass
V - VOC

Preservative:
1. None 3. HNO3
2. H2SO4 4. NaOH

Sample I.D. (10 Characters ONLY)	Sample Type	Container Size	Container Type	Container No.	Sampling Date	Sampling Time	Preservative	Lab I.D.	Analyses: VOCs	Comments
MW5	Water	40 mL	G	3	4-22-98	1225	HCl cool	26946	X	

Relinquished By: Scott George
Date: 4-22-98
Time: 1508

Relinquished By:
Date: -- --
Time: :

Received By:

Received For Lab By:

Date: -- --
Time: :

Date: 4 -- 23 -- 98
Time: 11 : 15

TURNAROUND TIME:
☐ RUSH:____ day turnaround
☐ ROUTINE

FOR LAB USE ONLY
Samples Received Chilled
☐ Yes
☐ No

Copies: White - Client Canary - Lab Receiving Pink - Lab File Goldenrod - Retained by Sampler

SPECIAL INSTRUCTIONS:

Appendix C

Exposure Assumptions for Chemical Intake Estimates

APPENDIX C
EXPOSURE ASSUMPTIONS FOR CHEMICAL INTAKE ESTIMATES

1.0 Introduction

This appendix provides the exposure scenarios, equations, and assumptions used to estimate chemical intakes in the risk assessment process for the McDonnell Douglas (Facility). Chemical exposures were calculated for each complete pathway for each potential receptor using appropriate exposure formulas and factors presented in various U.S. Environmental Protection Agency (EPA) guidance documents, including:

- Risk Assessment Guidance for Superfund (RAGS), Human Health Evaluation Manual, Part A (EPA, 1989), Part B (EPA, 1991a), and Supplemental Guidance (EPA, 1991b);
- Dermal Exposure Assessment: Principles and Applications (EPA, 1992);
- EPA Soil Screening Guidance (1996); and
- EPA Exposure Factors Handbook (1997)

Where appropriate, exposure factors based on site-specific information were used in place of EPA standard default values.

After determining daily exposures, the potential carcinogenic and non-carcinogenic risks associated with those exposures were calculated using appropriate cancer slope factors (CSFs) and risk reference doses (RfDs) available from various EPA sources, including the Integrated Risk Information System (IRIS, 1998), Health Effects Assessment Summary Tables (HEAST) (EPA, 1997), and the EPA-NCEA Superfund Health Risk Technical Support Center (values presented in EPA, 1996).

The following sections provide a list of the exposure scenarios (Section 2.0), exposure formulas (Section 3.0), and exposure factors (Section 4.0) used to calculate the chemical intakes for the Facility, as well as a list of references used (Section 5.0).

2.0 Development of Exposure Scenarios

The McDonnell Douglas RFI included the collection of soil and groundwater data from five SWMUs (SWMUs 10, 17, 21, 26 and 31). Analytical results for each SWMU were compared to investigation threshold levels (ITLs) to identify those areas for inclusion in the preliminary risk assessment. Based on these comparisons, SWMU No. 17 was the only area identified with constituent concentrations exceeding ITLs. Consequently, this preliminary risk assessment focuses on SWMU No. 17.

Exposure scenarios are unique for receptors, exposure pathways, and exposure parameters. The exposure scenarios and associated exposure pathways identified for SWMU No. 17 are presented in Table C-1.

Current Workers are expected to be exposed only to surface soil contamination or where vapors may be emitted from subsurface soils. SWMU No. 17 is completely paved, and has no surface soils to which a current worker could be exposed, however, volatile constituents have been detected in subsurface soils at SWMU No. 17. Consequently, current worker exposures may occur only through inhalation of vapors.

Future Workers (i.e., maintenance, facility, and construction/utility) may be exposed at SWMU No. 17 based on the hypothetical assumption that subsurface soils may be excavated at some time in the future and may be left on the surface. Exposures may occur through soil ingestion, dermal absorption of soil, as well as inhalation of dusts or vapors. Future construction/utility workers were also considered to be potentially exposed to groundwater through dermal contact during future excavation activities.

Future workers (maintenance) and recreational users may be exposed to constituents in groundwater discharging to Coldwater Creek. Exposures may occur through ingestion and dermal absorption of surface water.

3.0 Development of Exposure Formulas

The exposure formulas were based on the equations provided in EPA's Soil Screening Guidance (EPA, 1996), Region IX's PRG Guidance (1996), and in RAGS Part A (EPA, 1989) and Part B (EPA, 1991a). Qualifying subscripts were added to the basic exposure factor abbreviations to differentiate those factors that are used in multiple formulas. The following formulas were utilized to evaluate exposure at the Facility.

3.1 Soil, Oral Exposure

For worker exposures:

$$Intake\ (mg/kg/day) = \frac{CSo * IRso * AEi * FCs * FIs *}{BW * AT} \qquad (1)$$

Where:

AEi = ingestion absorption efficiency (unitless)
AT = averaging time (days).
BW = body weight (kg).
CSo = chemical concentration in soil (mg/kg).
ED = exposure duration (years).
EFso = exposure frequency for soil (days/year).
FCs = conversion factor for soil (kg/mg).
FIs = fraction of soil ingested from contaminated source (unitless).
IRso = soil ingestion rate (mg/day).

3.2 Soil, Dermal Exposure

For worker exposures:

$$Intake\ (mg/kg/day) = \frac{CSo * FCs * FIs * SAso * AF *}{BW * AT} \quad (2)$$

Where:

ABS = chemical-specific absorption factor (unitless).
AF = soil-to-skin adherence factor (mg/cm^2).
AT = period of time over which exposure is averaged (days).
BW = body weight (kg).
CSo = chemical concentration in soil (mg/kg).
ED = exposure duration (years).
EFso = exposure frequency for soil (events/year).
FCs = conversion factor for soil (kg/mg).
FIs = fraction of soil ingested from contaminated source (unitless).
SAso = skin surface area available for soil contact (cm^2/event).

3.3 Soil, Inhalation Exposure (Dust)

For worker exposures:

$$Intake\ (mg/kg/day) = \frac{CSo * IRa * EFa * ED * (1/PEF)}{BW * AT} \quad (3)$$

Where:

AT = period of time over which exposure is averaged (days).
BW = body weight (kg).
CSo = chemical concentration in soil (mg/kg).
ED = exposure duration (years).
EFa = exposure frequency for ambient air (days/year).
IRa = intake rate for ambient air (m^3/day).
PEF = particulate emission factor (m^3/kg).

3.4 Soil, Inhalation Exposure (Vapors)

For worker exposures:

$$Intake\ (mg/kg/day) = \frac{CSo * IRa * EFa * ED * (1/VFs)}{BW * AT} \quad (4)$$

Where:
- AT = period of time over which exposure is averaged (days).
- BW = body weight (kg).
- CSo = chemical concentration in soil (mg/kg).
- ED = exposure duration (years).
- EFa = exposure frequency for ambient air (days/year).
- IRa = intake rate for ambient air (m^3/day).
- VFs = volatilization factor for soil (m^3/kg).

3.5 Groundwater, Dermal Exposure

For construction/utility worker exposures:

$$Intake\ (mg/kg/day) = \frac{CGw * FCw * SAgw * DA * EFgw}{BW * AT} \quad (5)$$

Where:
- AT = period of time over which exposure is averaged (days).
- BW = body weight (kg).
- CGw = chemical concentration in groundwater (mg/L).
- DA = dermal absorbed dose (cm, chemical specific)
- ED = exposure duration (years).
- EFgw = exposure frequency for groundwater (days/year).
- FCw = volumetric conversion factor for water (L/cm^3).
- SAgw = skin surface area available for contact with groundwater (cm^2).

3.6 Surface Water, Oral Exposure

For worker and recreational exposures:

$$Intake\,(mg/kg/day) = \frac{CSw * IRsw * ETsw * EFsw * ED}{BW * AT} \quad (6)$$

Where:
- AT = period of time over which exposure is averaged (days).
- BW = body weight (kg).
- CSw = chemical concentration in surface water (mg/L).
- ED = exposure duration (years).
- EFsw = exposure frequency for surface water (days/year).
- ETsw = exposure time for surface water (hours/day).
- IRsw = intake rate for surface water (L/hour).

3.7 Surface Water, Dermal Exposure

For worker and recreational exposures:

$$Intake\,(mg/kg/day) = \frac{CSw * FCw * SAsw * DA * EFsw}{BW * AT} \quad (7)$$

Where:
- AT = period of time over which exposure is averaged (days).
- BW = body weight (kg).
- CSw = chemical concentration in surface water (mg/L).
- DA = dermal absorbed dose (cm, chemical specific).
- ED = exposure duration (years).
- EFsw = exposure frequency for surface water (days/year).
- FCw = volumetric conversion factor for water (L/cm^3).
- SAsw = skin surface area available for contact with surface water (cm^2).

For lifetime exposure:

$$Intake\ (mg/kg/day) = \frac{CSw * FCw * SFW_{adj} * DA * EFs}{AT} \quad (8)$$

Where:
- AT = period of time over which exposure is averaged (days).
- CSw = chemical concentration in surface water (mg/L).
- DA = dermal absorbed dose (cm, chemical specific)
- EFsw = exposure frequency for surface water (days/year).
- FCw = volumetric conversion factor for water (L/cm^3).
- SFW_{adj} = Age-adjusted skin contact factor for water (cm^2·year/kg).

$$SFW_{adj}\ (cm^2 \cdot year/kg) = \sum_{i=1}^{2} \frac{ED_i * SAsw_i}{BW_i} \quad (9)$$

Where:
- BW_i = body weight (kg; age-dependent).
- ED_i = exposure duration (years; age range for particular ingestion rate).
- $SAsw_i$ = skin surface area available for water contact (cm^2; age-dependent).

4.0 Exposure Factors for McDonnell Douglas RFI

Exposure factors are presented in the following sections. The source of information for each factor is also provided.

4.1 ABS (Chemical-specific absorption factor)

cis-1,2-Dichloroethene	0.3	MDOH, 1998
trans-1,2-Dichloroethene	0.1	MDOH, 1998
Tetrachloroethene	0.03	MDOH, 1998
1,1,2-Trichloroethane	0.1	MDOH, 1998
Trichloroethene	0.0005	MDOH, 1998

4.2 AEi (Ingestion absorption efficiency)

cis-1,2-Dichloroethene	1.0	MDOH, 1998
trans-1,2-Dichloroethene	1.0	MDOH, 1998
Tetrachloroethene	1.0	MDOH, 1998
1,1,2-Trichloroethane	1.0	MDOH, 1998
Trichloroethene	1.0	MDOH, 1998

4.3 AF (Soil-to-skin adherence factor)

1.0 mg/cm^2	Default value	EPA, 1992

4.4 AT (Averaging time)

Carcinogenic effects	70 years x 365 days/year	EPA, 1989
Non-carcinogenic effects	ED (years) x 365 days/year	EPA, 1989

4.5 BW (Body weight)

Adult

70 kg	Default value; average (male and female) of 50th percentile values for age = 18 to 75 years.	EPA, 1989

For lifetime exposure to potential carcinogens in surface water, see the time-weighted exposure factor SFW_{adj} in Section 4.22.

Child

15 kg	Default value; average (male and female) of 50th percentile values for age = 1 to 6 years.	EPA, 1991b

4.6 CSo / CGw / CSw (Chemical concentrations in various media)

The upper 95 percent confidence limit of the mean chemical concentration (UCL_{95}) was used to represent the Reasonable Maximum Exposure (RME) or high end exposure concentration. If the UCL_{95} exceeded the maximum detected chemical concentration, the maximum concentration was used to represent the RME.

The mean chemical concentration was used to represent the Reasonable Average Exposure (RAE) or central tendency exposure concentration. If the mean exceeded the maximum detected chemical concentration, the maximum concentration was used to represent the RAE.

To estimate the constituent concentrations in surface water for Coldwater Creek (CSw) immediately adjacent to the Facility, each constituent concentration in Coldwater Creek was conservatively assumed to be the same as the concentration of that constituent in the discharging groundwater.

The concentrations of the constituents of concern in groundwater at the point of discharge to the surface water at Coldwater Creek was determined using the following equation (ASTM, 1995):

$$C_{(x)} = C_{source} \cdot \exp[(\frac{X}{2\alpha_x}) \cdot (1-\sqrt{1+\frac{4\lambda \cdot \alpha_x}{U}})] \cdot erf\,[\frac{S_w}{4 \cdot \sqrt{\alpha_y}} \qquad \textbf{(10)}$$

where:

$C_{(x)}$	=	Concentration of constituent in groundwater at distance X from the source;
C_{source}	=	Concentration of constituent in groundwater at the source;
X	=	Distance along the centerline of the groundwater plume from the source;
α_X	=	Longitudinal dispersivity;
λ	=	First order degradation constant;
U	=	Specific discharge;
S_w	=	Source width perpendicular to groundwater flow direction in horizontal plane;
α_y	=	Transverse dispersivity;
S_d	=	Source width perpendicular to groundwater flow direction in vertical plane;
α_z	=	Vertical dispersivity

The values of the input and output variables for each constituent of concern are presented in Table C-2.

4.7 DA (Dermal absorbed dose)

Dermal absorbed dose was determined on a chemical-specific basis in accordance with EPA (1992). The values of DA for each constituent of potential concern in groundwater and surface water are presented in Table C-3.

DA for organics was calculated based on Equation 11 or 12 in accordance with the following conditions:

If ET < t^*, then DA was calculated using:

$$DA_o = 2 * K_p * [(6 * \tau * ET)/\pi]^{1/2} \quad (11)$$

If ET > t^*, then DA was calculated using:

$$DA_o = K_p * [(ET/(1 + \beta)) + 2 * \tau * (1 + 3 * \beta)/(1 + \beta)] \quad (12)$$

where: DA_o = dermal absorbed dose for organics (cm, chemical specific)
K_p = permeability coefficient (cm/hr, chemical specific)
ET = exposure time (2 hours)
π = pi (3.141592654)
t^* = time required for dermal absorbtion to reach steady state (hours)
τ = lag time (hours)
β = dimensionless constant representing the octanol-water partitioning properties of a chemical

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4.8 ED (Exposure duration)

Recreational; Adult (Current and Future)

30 years	Default value; national 90th percentile time at one residence.	EPA, 1989

For lifetime exposure to potential carcinogens in surface water, see the time-weighted exposure factor SFW_{adj} under Section 4.22.

Recreational; Child (Current and Future)

6 years	Assumes exposure for children age = 1 to 6 years, inclusive, in rural/residential areas.	EPA, 1991b

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Facility/Maintenance Worker; Adult (Current)

25 years	National 95th percentile time at one workplace.	EPA, 1991b

Facility/Maintenance Worker; Adult (Future)

25 years	National 95th percentile time at one workplace.	EPA, 1991b

Construction/Utility Worker; Adult (Future)

1 year	Assumed value for a construction worker.

4.9 EFa / EFso / EFgw (Exposure frequency for various media)

Facility/Maintenance Worker; Adult (Current)

30 days/year	Amount of time spent in outdoor activities at source [1 day/week during the growing season (30 weeks/year)] based on facility worker activity patterns.

Facility/Maintenance Worker; Adult (Future)

250 days/year	Default value; amount of time spent outdoors at work.

Construction/Utility Worker; Adult (Future)

30 days/year	Assumed value for a construction worker.

4.10 EFsw (Exposure frequency for surface water)

Recreational; Adult, Child, and Lifetime (Current and Future)

78 events/year 78 days/year	Assumes that persons may recreate in Coldwater Creek 3 days/week during the period from May through October (26 weeks/year).

Facility/Maintenance Worker; Adult (Future)

30 events/year 30 days/year	Assumes that a facility/maintenance worker may may be exposed to surface water in Coldwater Creek 1 day/week during the growing season (30 weeks per year).

4.11 ETsw (Exposure time for surface water)

Recreational and Facility/Maintenance Worker; Adult, Child, and Lifetime (Future)

2.0 hours/day	Assumed value for persons recreating or working in Coldwater Creek.

4.12 FCs (Conversion factor for soil)

1×10^{-6} kg/mg

4.13 FCw (Conversion factor for water)

0.001 L/cm^3

4.14 FIs (Fraction of soil ingested from contaminated source)

Facility Worker; Adult (Future)

1.0	Assumes that 100 percent of daily soil exposure is from inadvertent contact with soil.

Maintenance Worker; Adult (Future)

0.10 Assumes that 10 percent of daily soil exposure is from inadvertent contact with soil at source. (It is assumed that a maintenance worker may be exposed to several areas of the Facility on a yearly basis, such that each area represents only a fraction of the total exposure.)

Construction Worker; Adult (Future)

1.0 Conservative assumption that 100 percent of daily soil exposure is from inadvertent contact with soil at source.

4.15 IRa (Inhalation rate for air)

Maintenance Worker; Adult (Current and Future)

7.0 m^3/day	Assumed value for a maintenance worker; based on an adult heavy inhalation rate of 3.5 m^3/hour and an assumed exposure time of 2 hours/day.	EPA, 1997

Facility Worker; Adult (Current and Future)

20 m^3/day	Default value; reasonable upper-bound inhalation rate for an 8-hour workday.	EPA, 1991b

Construction/Utility Worker; Adult (Future)

28 m^3/day	Based on an adult heavy inhalation rate of 3.5 m^3/hour and an assumed exposure time of 8 hours/day.	EPA, 1997

4.16 IRso (Ingestion rate for soil)

Maintenance Worker; Adult (Current and Future)

50 mg/day	Typical adult workplace ingestion rate.	EPA, 1991b

Facility Worker; Adult (Current and Future)

50 mg/day	Default value; typical adult workplace ingestion rate.	EPA, 1991b

Construction/Utility Worker; Adult (Future)

480 mg/day	Soil ingestion rate for construction/utility work estimated by Hawley (1985).	EPA, 1991b

According to EPA (1991b), "For certain outdoor activities in the commercial/industrial setting (e.g., construction or utility work), a soil ingestion rate of 480 mg/day may be used; however, this type of work is usually short-term and is often dictated by the weather. Thus exposure frequency would generally be less than one year and exposure duration would vary according to site-specific construction/utility plans." The soil ingestion rate of 480 mg/day is a very conservative estimate and is expected to overestimate the exposure to a typical construction/utility worker at the Facility.

4.17 IRsw (Ingestion rate for surface water)

Recreational and Facility/Maintenance Worker; Adult, Child, and Lifetime (Current and Future)

0.05 L/hour	Default value; national average for swimming.	EPA, 1989

4.18 PEF (Particulate emission factor)

1.32×10^9 m^3/kg	Default value.	EPA, 1996

Based on site-specific information regarding vegetative cover and local meterological conditions, the actual potential for dust emission is expected to be lower than would be predicted using the default value. However, to insure a conservative analysis, the USEPA default value was selected.

4.19 SAgw (Skin surface area available for contact with groundwater)

Construction/Utility Worker; Adult (Future)

10,000 cm^2/day	50 percent of whole body surface area for adult	EPA, 1997

4.20 SAsw (Skin surface area available for contact with surface water)

Recreational and Facility/Maintenance Worker; Adult

10,000 cm^2/day	50 percent of whole body surface area for adult	EPA, 1997

Recreational; Child

4760 cm^2/day	50 percent of whole body surface area for child	EPA, 1997

Lifetime;
For lifetime recreational exposure to potential carcinogens in surface water, see the time-weighted exposure factor SFW_{adj} in this documentation.

4.21 SAso (Skin surface area available for contact with soil)

Adult Worker; All Scenarios

5000 cm^2/day	Recommended default	EPA, 1997

4.22 SFW_{adj} (Age-adjusted skin contact factor for surface water)

5,333 cm^2·year/kg Calculated using Equation 9 and the following exposure factors.

i	BW	ED	SAsw	Comment
1	15	6	4,760	Child, ages 1 to 6, inclusive
2	70	24	10,000	Non-child, ages 7 to 30, inclusive

4.23 VFs (Volatilization factor for soil)

VFs are chemical-specific values calculated using Equations 13 and 14 using a combination of site-specific and default factors from EPA, 1996. Table C-4 presents the chemical specific data for the volatile constituents of concern at SWMU No. 17. Table C-5 presents the current and future scenario assumptions used in the calculation of VF, and Table C-6 presents the calculated chemical-specific VF values.

$$VF(m^3/kg) = \frac{Q}{C} \times \frac{(3.14 \times DA \times T)^{1/2}}{(2 \times \rho_b \times DA)} \times 10^{-4}\ m^2/cm^2 \quad \textbf{(13)}$$

$$DA = \frac{(\theta_a^{3.33} \times D_i \times H') + (\theta_w^{3.33} \times D_w)}{n^2} \times \frac{1}{(\rho_b \times K_d) + \theta_w +} \quad \textbf{(14)}$$

Where:

Q/C = inverse of the mean concentration at the center of a source $(g/m^2\text{-}s)/(kg/m^3)$
T = exposure interval (s)
ρ_b = dry soil bulk density (g/cm^3)
θ_a = air filled soil porosity (L_{air}/L_{soil})
D_i = chemical-specific diffusivity in air (cm^2/s);
H' = chemical-specific dimensionless Henry's Law Constant
θ_w = water filled soil porosity (L_{water}/L_{soil})
D_w = chemical-specific diffusivity in water (cm^2/s)
n = total soil porosity (L_{pore}/L_{soil})
K_d = chemical-specific soil-water partition coefficient (cm^3/g);

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McDonnell Douglas

TABLE C-1 Exposure Scenarios With Applicable Exposure Pathways

Scenario	Soil Oral	Soil Dermal	Soil Dust	Soil Vapor	Groundwater Dermal	Surface Water Oral	Surface Water Dermal
Current Worker (Fac/Maint)				X			
Future Worker (Fac/Maint)	X	X	X	X		X	X
Future Construction Worker	X	X	X	X	X		
Recreational Coldwater Creek						X	X

TABLE C-2 Values Of Input And Output Variables For Prediction Of Groundwater Concentrations Discharging To Coldwater Creek

Constituent	Csource [1] (mg/L)	X (cm)	α x (cm)	λ (1/day)	U (cm/day)	Sw (cm)	α y (cm)	Sd (cm)	α z (cm)	RME Cx (mg/L)
Volatile Organics										
Benzene	0.0118	88500	8850	0.0009	0.1723	2740	2950	914	442.5	1.7E-32
1,1-Dichloroethene	0.0963	88500	8850	0.0053	0.1723	2740	2950	914	442.5	1.2E-73
cis-1,2-Dichloroethene	50.5	88500	8850	0.0002	0.1723	2740	2950	914	442.5	1.2E-14
trans-1,2-Dichloroethene	0.09	88500	8850	0.0002	0.1723	2740	2950	914	442.5	2.1E-17
Tetrachloroethene	113	88500	8850	0.0009	0.1723	2740	2950	914	442.5	1.8E-29
Toluene	6.29	88500	8850	0.011	0.1723	2740	2950	914	442.5	2.1E-103
1,1,2-Trichloroethane	0.147	88500	8850	0.0009	0.1723	2740	2950	914	442.5	3.3E-32
Trichloroethene	72.4	88500	8850	0.0004	0.1723	2740	2950	914	442.5	2.2E-19
Vinyl Chloride	12.7	88500	8850	0.0002	0.1723	2740	2950	914	442.5	2.9E-15

Constituent	Csource [2] (mg/L)	X (cm)	α x (cm)	λ (1/day)	U (cm/day)	Sw (cm)	α y (cm)	Sd (cm)	α z (cm)	RAE Cx (mg/L)
Volatile Organics										
Benzene	0.00558	88500	8850	0.0009	0.1723	2740	2950	914	442.5	8.1E-33
1,1-Dichloroethene	0.0391	88500	8850	0.0053	0.1723	2740	2950	914	442.5	4.7E-74
cis-1,2-Dichloroethene	18.9	88500	8850	0.0002	0.1723	2740	2950	914	442.5	4.4E-15
trans-1,2-Dichloroethene	0.0449	88500	8850	0.0002	0.1723	2740	2950	914	442.5	1.0E-17
Tetrachloroethene	44.8	88500	8850	0.0009	0.1723	2740	2950	914	442.5	7.0E-30
Toluene	2.09	88500	8850	0.011	0.1723	2740	2950	914	442.5	6.9E-104
1,1,2-Trichloroethane	0.0504	88500	8850	0.0009	0.1723	2740	2950	914	442.5	1.1E-32
Trichloroethene	26.5	88500	8850	0.0004	0.1723	2740	2950	914	442.5	8.0E-20
Vinyl Chloride	4.37	88500	8850	0.0002	0.1723	2740	2950	914	442.5	1.0E-15

[1] Values of Csource are for RME (UCL 95 concentrations)
[2] Values of Csource are for RAE (mean concentrations)

TABLE C-3 Values Of DA For Constituents Of Potential Concern In Groundwater And Surface Water

Constituent	ß	Kp	τ	t*	DA
Volatile Organics					
Benzene	1.3E-02	2.1E-02	2.6E-01	6.3E-01	5.27E-02
1,1-Dichloroethene	1.3E-02	1.6E-02	3.4E-01	8.2E-01	4.27E-02
cis-1,2-Dichloroethene	7.2E-03	1.0E-02	3.4E-01	8.2E-01	2.68E-02
trans-1,2-Dichloroethene	7.2E-03	1.0E-02	3.4E-01	8.2E-01	2.68E-02
Tetrachloroethene	2.5E-01	4.8E-02	9.0E-01	4.3E+00	1.78E-01
Toluene	5.4E-02	4.5E-02	3.2E-01	7.7E-01	1.17E-01
1,1,2-Trichloroethane	1.1E-02	8.4E-03	5.7E-01	1.4E+00	2.64E-02
Trichloroethene	2.6E-02	1.6E-02	5.5E-01	1.3E+00	4.97E-02
Vinyl Chloride	2.3E-03	7.3E-03	2.1E-01	5.1E-01	1.76E-02

TABLE C-4 Physical And Chemical Properties Of Volatile Organic Constituents Of Potential Concern
McDonnell Douglas RFI, St. Louis, Missouri

CAS No.	Constituent	Molecular Weight (g/mole)	Solubility In Water (mg/L)	Diffusivity In Air (Di) (cm^2/s)	Vapor Pressure (mm Hg)	Dimensionless Henry's Law Constant (H')	Organic Carbon Partition Coefficient (Koc) (L/kg)	Octanol/Water Partition Coefficient (Log Kow)	Diffusion Coefficient In Water (cm^2/s)	First Order Degradation Constant (day^{-1})
71-43-2	Benzene	78	1.75E+03	8.80E-02	9.52E+01	2.28E-01	5.89E+01	2.13	9.80E-06	0.0009
75-35-4	1,1-Dichloroethene	97	2.25E+03	9.00E-02	6.00E+02	1.07E+00	5.89E+01	2.13	1.04E-05	0.0053
156-59-2	cis-1,2-Dichloroethene	97	3.50E+03	7.36E-02	2.08E+02	1.67E-01	3.55E+01	1.86	1.13E-05	0.00024
156-60-5	trans-1,2-Dichloroethene	97	6.30E+03	7.07E-02	3.24E+02	3.85E-01	5.25E+01	2.07	1.19E-05	0.00024
127-18-4	Tetrachloroethene	166	2.00E+02	7.20E-02	1.78E+01	7.54E-01	1.55E+02	2.67	8.20E-06	0.00096
108-88-3	Toluene	92	5.26E+02	8.70E-02	2.81E+01	2.72E-01	1.82E+02	2.75	8.60E-06	0.011
79-00-5	1,1,2-Trichloroethane	133	4.42E+03	7.80E-02	3.00E+01	3.74E-02	5.01E+01	2.05	8.80E-06	0.00095
79-01-6	Trichloroethene	131	1.10E+03	7.90E-02	5.79E+01	4.22E-01	1.66E+02	2.71	9.10E-06	0.00042
57-01-4	Vinyl Chloride	63	2.76E+03	1.06E-01	2.66E+02	1.11E+00	1.86E+01	1.5	1.23E-06	0.00024

Source: USEPA, 1996
HSDB, 1998
USEPA, 1986

TABLE C-5 Scenario-Specific Exposure Factors Used In The Volatilization Pathway
McDonnell Douglas RFI, St. Louis, Missouri

Exposure Parameter	Value	Source
Current Conditions at SWMU 17		
Q/C	81.64	USEPA, 1996 (Value for 0.5 acre site in Zone V - Lincoln)
T (maintenance/facility workers)	7.88E+08	Calculated Value Assuming Exposure Duration Of 25 Years
Bulk density (pb)	2.31	Value for concrete (Thibodeaux, 1979)
Air filled soil porosity (Theta a)	0.06	Calculated Value where Theta a = n - Theta w
Water filled soil porosity (Theta w)	0.06	Estimate Value for concrete
Total soil porosity (n)	0.12	Calculated Value where n = 1 - (pb/ps), and where ps = 2.65
Fraction organic carbon	0.006	Default Value (USEPA, 1996)
Future Conditions at SWMU 17		
Q/C	81.64	USEPA, 1996 (Value for 0.5 acre site in Zone V - Lincoln)
T (maintenance/facility workers)	7.88E+08	Calculated Value Assuming Exposure Duration Of 25 Years
T (construction/utility workers)	7.78E+06	Calculated Value Assuming Exposure Duration Of 90 Days
Bulk density (pb)	1.5	Default Value for silty clay (USEPA, 1996)
Air filled soil porosity (Theta a)	0.28	Default Value (USEPA, 1996)
Water filled soil porosity (Theta w)	0.15	Default Value (USEPA, 1996)
Total soil porosity (n)	0.43	Default Value (USEPA, 1996)
Fraction organic carbon	0.006	Default Value (USEPA, 1996)

TABLE C-6 Chemical-Specific Volatilization Factors Used In The Soil-Vapor Inhalation Pathway
McDonnell Douglas RFI, St. Louis, Missouri

Constituent	Calculated Volatilization Factors		
	Current Fac/Maint Scenario	Future Fac/Maint Scenario	Future Construction Scenario
cis-1,2-Dichloroethene	7720	3140	312
trans-1,2-Dichloroethene	6230	2510	250
Tetrachloroethene	7360	2760	274
1,1,2-Trichloroethane	18400	7020	697
Trichloroethene	9660	3520	350

Appendix D

Exposure and Risk Calculations

MCDONNELL DOUGLAS

CURRENT MAINTENANCE WORKER SCENARIO
NONCARCINOGENIC RISKS
SOIL VAPOR INHALATION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		VOLATILIZATION FACTOR (VF)	ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME		RAE	RME		RAE	RME
cis-1,2-Dichloroethene	0.315	3.2	7720	3.4E-07	3.4E-06	1.0E-02	3E-05	3E-04
trans-1,2-Dichloroethene	0.00474	0.00611	6230	1.8E-08	8.1E-09	2.0E-02	9E-07	4E-07
Tetrachloroethene	20.5	200	7360	6.5E-05	2.2E-04	1.0E-02	7E-03	2E-02
1,1,2-Trichloroethane	0.00318	0.00323	18400	4.1E-09	1.4E-09	4.0E-03	1E-06	4E-07
Trichloroethene	0.0211	0.0428	9660	5.1E-08	3.6E-08	6.0E-03	9E-06	6E-06
TOTAL							7E-03	2E-02

MCDONNELL DOUGLAS

CURRENT MAINTENANCE WORKER SCENARIO
CARCINOGENIC RISKS
SOIL VAPOR INHALATION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		VOLATILIZATION FACTOR (VF)	ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME		RAE	RME		RAE	RME
Tetrachloroethene	20.5	200	7360	8.2E-06	8.0E-05	2.0E-03	2E-08	2E-07
1,1,2-Trichloroethene	0.00318	0.00323	18400	5.1E-10	5.2E-10	5.7E-02	3E-11	3E-11
Trichloroethene	0.0211	0.0428	9660	6.4E-09	1.3E-08	6.0E-03	4E-11	8E-11
TOTAL							2E-08	2E-07

MCDONNELL DOUGLAS

CURRENT FACILITY WORKER SCENARIO
NONCARCINOGENIC RISKS
SOIL VAPOR INHALATION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		VOLATILIZATION FACTOR (VF)	ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME		RAE	RME		RAE	RME
cis-1,2-Dichloroethene	0.315	3.2	7720	9.6E-07	9.7E-06	1.0E-02	1E-04	1E-03
trans-1,2-Dichloroethene	0.00474	0.00611	6230	1.8E-08	2.3E-08	2.0E-02	9E-07	1E-06
Tetrachloroethene	20.5	200	7360	6.5E-05	6.4E-04	1.0E-02	7E-03	6E-02
1,1,2-Trichloroethane	0.00318	0.00323	18400	4.1E-09	4.1E-09	4.0E-03	1E-06	1E-06
Trichloroethene	0.0211	0.0428	9660	5.1E-08	1.0E-07	6.0E-03	9E-06	2E-05
TOTAL							7E-03	6E-02

MCDONNELL DOUGLAS

CURRENT FACILITY WORKER SCENARIO
CARCINOGENIC RISKS
SOIL VAPOR INHALATION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		VOLATILIZATION FACTOR (VF)	ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME		RAE	RME		RAE	RME
Tetrachloroethene	20.5	200	7360	2.3E-05	2.3E-04	2.0E-03	5E-08	5E-07
1,1,2-Trichloroethene	0.00318	0.00323	18400	1.4E-09	1.5E-09	5.7E-02	8E-11	8E-11
Trichloroethene	0.0211	0.0428	9660	1.8E-08	3.7E-08	6.0E-03	1E-10	2E-10
TOTAL							5E-08	5E-07

MCDONNELL DOUGLAS

FUTURE MAINTENANCE WORKER SCENARIO
NONCARCINOGENIC RISKS
SOIL INGESTION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		ABSORPTION EFFICIENCY (AEi)	ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME		RAE	RME		RAE	RME
cis-1,2-Dichloroethene	0.315	3.2	1.0	1.5E-08	1.6E-07	1.0E-02	2E-06	2E-05
trans-1,2-Dichloroethene	0.00474	0.00611	1.0	2.3E-10	3.0E-10	2.0E-02	1E-08	1E-08
Tetrachloroethene	20.5	200	1.0	1.0E-06	9.8E-06	1.0E-02	1E-04	1E-03
1,1,2-Trichloroethane	0.00318	0.00323	1.0	1.6E-10	1.6E-10	4.0E-03	4E-08	4E-08
Trichloroethene	0.0211	0.0428	1.0	1.0E-09	2.1E-09	6.0E-03	2E-07	3E-07
TOTAL							1E-04	1E-03

MCDONNELL DOUGLAS

FUTURE MAINTENANCE WORKER SCENARIO
NONCARCINOGENIC RISKS
SOIL DERMAL ABSORPTION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		DERMAL ABSORPTION FACTOR	ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME	(ABS)	RAE	RME		RAE	RME
cis-1,2-Dichloroethene	0.315	3.2	0.3	4.6E-07	4.7E-06	1.0E-02	5E-05	5E-04
trans-1,2-Dichloroethene	0.00474	0.00611	0.1	2.3E-09	3.0E-09	2.0E-02	1E-07	1E-07
Tetrachloroethene	20.5	200	0.03	3.0E-06	2.9E-05	1.0E-02	3E-04	3E-03
1,1,2-Trichloroethane	0.00318	0.00323	0.1	1.6E-09	1.6E-09	4.0E-03	4E-07	4E-07
Trichloroethene	0.0211	0.0428	0.0005	5.2E-11	1.0E-10	6.0E-03	9E-09	2E-08
TOTAL							3E-04	3E-03

MCDONNELL DOUGLAS

FUTURE MAINTENANCE WORKER SCENARIO
NONCARCINOGENIC RISKS
SOIL DUST INHALATION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME	RAE	RME		RAE	RME
cis-1,2-Dichloroethene	0.315	3.2	1.6E-11	1.7E-10	1.0E-02	2E-09	2E-08
trans-1,2-Dichloroethene	0.00474	0.00611	2.5E-13	3.2E-13	2.0E-02	1E-11	2E-11
Tetrachloroethene	20.5	200	1.1E-09	1.0E-08	1.0E-02	1E-07	1E-06
1,1,2-Trichloroethane	0.00318	0.00323	1.7E-13	1.7E-13	4.0E-03	4E-11	4E-11
Trichloroethene	0.0211	0.0428	1.1E-12	2.2E-12	6.0E-03	2E-10	4E-10
TOTAL						1E-07	1E-06

MCDONNELL DOUGLAS

FUTURE MAINTENANCE WORKER SCENARIO
NONCARCINOGENIC RISKS
SOIL VAPOR INHALATION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		VOLATILIZATION FACTOR (VF)	ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME		RAE	RME		RAE	RME
cis-1,2-Dichloroethene	0.315	3.2	3140	6.9E-06	7.0E-05	1.0E-02	7E-04	7E-03
trans-1,2-Dichloroethene	0.00474	0.00611	2510	1.3E-07	1.7E-07	2.0E-02	6E-06	8E-06
Tetrachloroethene	20.5	200	2760	5.1E-04	5.0E-03	1.0E-02	5E-02	5E-01
1,1,2-Trichloroethane	0.00318	0.00323	7020	3.1E-08	3.2E-08	4.0E-03	8E-06	8E-06
Trichloroethene	0.0211	0.0428	3520	4.1E-07	8.3E-07	6.0E-03	7E-05	1E-04
TOTAL							5E-02	5E-01

MCDONNELL DOUGLAS

FACILITY/MAINTENACNE WORKER
NONCARCINOGENIC RISKS
SURFACE WATER INGESTION PATHWAY

COLDWATER CREEK

CONSTITUENT	SURFACE WATER EXPOSURE CONCENTRATION (mg/L)		ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME	RAE	RME		RAE	RME
Benzene	8.10E-33	1.70E-32	9.5E-37	2.0E-36	1.7E-03	6E-34	1E-33
1,1-Dichloroethene	4.70E-74	1.20E-73	5.5E-78	1.4E-77	9.0E-03	6E-76	2E-75
cis-1,2-Dichloroethene	4.40E-15	1.20E-14	5.2E-19	1.4E-18	1.0E-02	5E-17	1E-16
trans-1,2-Dichloroethene	1.00E-17	2.10E-17	1.2E-21	2.5E-21	2.0E-02	6E-20	1E-19
Tetrachloroethene	7.00E-30	1.80E-29	8.2E-34	2.1E-33	1.0E-02	8E-32	2E-31
Toluene	6.9E-104	2.1E-103	8.1E-108	2.5E-107	2.0E-01	4E-107	1E-106
1,1,2-Trichloroethane	1.10E-32	3.30E-32	1.3E-36	3.9E-36	4.0E-03	3E-34	1E-33
Trichloroethene	8.00E-20	2.20E-19	9.4E-24	2.6E-23	6.0E-03	2E-21	4E-21
Vinyl Chloride	1.00E-15	2.90E-15	1.2E-19	3.4E-19	NA	NC	NC
TOTAL						5E-17	1E-16

MCDONNELL DOUGLAS

FACILITY/MAINTENANCE WORKER
NONCARCINOGENIC RISKS
SURFACE WATER DERMAL ABSORPTION PATHWAY

COLDWATER CREEK

CONSTITUENT	SURFACE WATER EXPOSURE CONCENTRATION (mg/L)		DERMAL ABSORBED DOSE (DA)	ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME		RAE	RME		RAE	RME
Benzene	8.10E-33	1.70E-32	5.27E-02	5.0E-36	1.1E-35	1.6E-03	3E-33	7E-33
1,1-Dichloroethene	4.70E-74	1.20E-73	4.27E-02	2.4E-77	6.0E-77	9.0E-03	3E-75	7E-75
cis-1,2-Dichloroethene	4.40E-15	1.20E-14	2.68E-02	1.4E-18	3.8E-18	1.0E-02	1E-16	4E-16
trans-1,2-Dichloroethene	1.00E-17	2.10E-17	2.68E-02	3.1E-21	6.6E-21	2.0E-02	2E-19	3E-19
Tetrachloroethene	7.00E-30	1.80E-29	1.78E-01	1.5E-32	3.8E-32	1.0E-02	1E-30	4E-30
Toluene	6.9E-104	2.1E-103	1.17E-01	9.5E-107	2.9E-106	2.0E-01	5E-106	1E-105
1,1,2-Trichloroethane	1.10E-32	3.30E-32	2.64E-02	3.4E-36	1.0E-35	4.0E-03	9E-34	3E-33
Trichloroethene	8.00E-20	2.20E-19	4.97E-02	4.7E-23	1.3E-22	6.0E-03	8E-21	2E-20
Vinyl Chloride	1.00E-15	2.90E-15	1.76E-02	2.1E-19	6.0E-19	NA	NC	NC
TOTAL							1E-16	4E-16

MCDONNELL DOUGLAS

FUTURE MAINTENANCE WORKER SCENARIO
CARCINOGENIC RISKS
SOIL INGESTION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		ABSORPTION EFFICIENCY (AEi)	ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME		RAE	RME		RAE	RME
Tetrachloroethene	20.5	200	1	3.6E-07	3.5E-06	5.2E-02	2E-08	2E-07
1,1,2-Trichloroethene	0.00318	0.00323	1	5.6E-11	5.6E-11	5.7E-02	3E-12	3E-12
Trichloroethene	0.0211	0.0428	1	3.7E-10	7.5E-10	1.1E-02	4E-12	8E-12
TOTAL							2E-08	2E-07

MCDONNELL DOUGLAS

FUTURE MAINTENANCE WORKER SCENARIO
CARCINOGENIC RISKS
SOIL DERMAL ABSORPTION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		DERMAL ABSORPTION FACTOR	ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME	(ABS)	RAE	RME		RAE	RME
Tetrachloroethene	20.5	200	0.03	1.1E-06	1.0E-05	5.2E-02	6E-08	5E-07
1,1,2-Trichloroethene	0.00318	0.00323	0.1	5.6E-10	5.6E-10	5.7E-02	3E-11	3E-11
Trichloroethene	0.0211	0.0428	0.0005	1.8E-11	3.7E-11	1.1E-02	2E-13	4E-13
TOTAL							6E-08	5E-07

MCDONNELL DOUGLAS

FUTURE MAINTENANCE WORKER SCENARIO
CARCINOGENIC RISKS
SOIL DUST INHALATION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME	RAE	RME		RAE	RME
Tetrachloroethene	20.5	200	3.8E-10	3.7E-09	2.0E-03	8E-13	7E-12
1,1,2-Trichloroethene	0.00318	0.00323	5.9E-14	6.0E-14	5.7E-02	3E-15	3E-15
Trichloroethene	0.0211	0.0428	3.9E-13	7.9E-13	6.0E-03	2E-15	5E-15
TOTAL						8E-13	7E-12

MCDONNELL DOUGLAS

FUTURE MAINTENANCE WORKER SCENARIO
CARCINOGENIC RISKS
SOIL VAPOR INHALATION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		VOLATILIZATION FACTOR (VF)	ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME		RAE	RME		RAE	RME
Tetrachloroethene	20.5	200	2760	1.8E-04	1.8E-03	2.0E-03	4E-07	4E-06
1,1,2-Trichloroethene	0.00318	0.00323	7020	1.1E-08	1.1E-08	5.7E-02	6E-10	6E-10
Trichloroethene	0.0211	0.0428	3520	1.5E-07	3.0E-07	6.0E-03	9E-10	2E-09
TOTAL							4E-07	4E-06

MCDONNELL DOUGLAS

FACILITY/MAINTENANCE WORKER
CARCINOGENIC RISKS
SURFACE WATER INGESTION PATHWAY

COLDWATER CREEK

CONSTITUENT	SURFACE WATER EXPOSURE CONCENTRATION (mg/L)		ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME	RAE	RME		RAE	RME
Benzene	8.1E-33	1.7E-32	3.4E-37	7.1E-37	2.9E-02	1E-38	2E-38
1,1-Dichloroethene	4.7E-74	1.2E-73	2.0E-78	5.0E-78	6.0E-01	1E-78	3E-78
Tetrachloroethene	7.0E-30	1.8E-29	2.9E-34	7.5E-34	5.2E-02	2E-35	4E-35
1,1,2-Trichloroethane	1.1E-32	3.3E-32	4.6E-37	1.4E-36	5.7E-02	3E-38	8E-38
Trichloroethene	8.0E-20	2.2E-19	3.4E-24	9.2E-24	1.1E-02	4E-26	1E-25
Vinyl Chloride	1.0E-15	2.9E-15	4.2E-20	1.2E-19	1.9E+00	8E-20	2E-19
TOTAL						8E-20	2E-19

MCDONNELL DOUGLAS

FACILITY/MAINTENANCE WORKER
CARCINOGENIC RISKS
SURFACE WATER DERMAL ABSORPTION PATHWAY

COLDWATER CREEK

CONSTITUENT	SURFACE WATER EXPOSURE CONCENTRATION (mg/L)		DERMAL ABSORBED DOSE (DA)	ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME		RAE	RME		RAE	RME
Benzene	8.1E-33	1.7E-32	5.27E-02	1.8E-36	3.8E-36	3.1E-02	6E-38	1E-37
1,1-Dichloroethene	4.7E-74	1.2E-73	4.27E-02	8.4E-78	2.1E-77	6.0E-01	5E-78	1E-77
Tetrachloroethene	7.0E-30	1.8E-29	1.78E-01	5.2E-33	1.3E-32	5.2E-02	3E-34	7E-34
1,1,2-Trichloroethane	1.1E-32	3.3E-32	2.64E-02	1.2E-36	3.7E-36	5.7E-02	7E-38	2E-37
Trichloroethene	8.0E-20	2.2E-19	4.97E-02	1.7E-23	4.6E-23	1.1E-02	2E-25	5E-25
Vinyl Chloride	1.0E-15	2.9E-15	1.76E-02	7.4E-20	2.1E-19	1.9E+00	1E-19	4E-19
TOTAL							1E-19	4E-19

MCDONNELL DOUGLAS

FUTURE FACILITY WORKER SCENARIO
NONCARCINOGENIC RISKS
SOIL INGESTION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		ABSORPTION EFFICIENCY (AEi)	ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME		RAE	RME		RAE	RME
cis-1,2-Dichloroethene	0.315	3.2	1.0	1.5E-07	1.6E-06	1.0E-02	2E-05	2E-04
trans-1,2-Dichloroethene	0.00474	0.00611	1.0	2.3E-09	3.0E-09	2.0E-02	1E-07	1E-07
Tetrachloroethene	20.5	200	1.0	1.0E-05	9.8E-05	1.0E-02	1E-03	1E-02
1,1,2-Trichloroethane	0.00318	0.00323	1.0	1.6E-09	1.6E-09	4.0E-03	4E-07	4E-07
Trichloroethene	0.0211	0.0428	1.0	1.0E-08	2.1E-08	6.0E-03	2E-06	3E-06
TOTAL							1E-03	1E-02

MCDONNELL DOUGLAS

FUTURE FACILITY WORKER SCENARIO
NONCARCINOGENIC RISKS
SOIL DERMAL ABSORPTION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		DERMAL ABSORPTION FACTOR	ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME	(ABS)	RAE	RME		RAE	RME
cis-1,2-Dichloroethene	0.315	3.2	0.3	4.6E-06	4.7E-05	1.0E-02	5E-04	5E-03
trans-1,2-Dichloroethene	0.00474	0.00611	0.1	2.3E-08	3.0E-08	2.0E-02	1E-06	1E-06
Tetrachloroethene	20.5	200	0.03	3.0E-05	2.9E-04	1.0E-02	3E-03	3E-02
1,1,2-Trichloroethane	0.00318	0.00323	0.1	1.6E-08	1.6E-08	4.0E-03	4E-06	4E-06
Trichloroethene	0.0211	0.0428	0.0005	5.2E-10	1.0E-09	6.0E-03	9E-08	2E-07
TOTAL							3E-03	3E-02

MCDONNELL DOUGLAS

FUTURE FACILITY WORKER SCENARIO
NONCARCINOGENIC RISKS
SOIL DUST INHALATION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME	RAE	RME		RAE	RME
cis-1,2-Dichloroethene	0.315	3.2	4.7E-11	4.7E-10	1.0E-02	5E-09	5E-08
trans-1,2-Dichloroethene	0.00474	0.00611	7.0E-13	9.1E-13	2.0E-02	4E-11	5E-11
Tetrachloroethene	20.5	200	3.0E-09	3.0E-08	1.0E-02	3E-07	3E-06
1,1,2-Trichloroethane	0.00318	0.00323	4.7E-13	4.8E-13	4.0E-03	1E-10	1E-10
Trichloroethene	0.0211	0.0428	3.1E-12	6.3E-12	6.0E-03	5E-10	1E-09
TOTAL						3E-07	3E-06

MCDONNELL DOUGLAS

FUTURE FACILITY WORKER SCENARIO
NONCARCINOGENIC RISKS
SOIL VAPOR INHALATION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		VOLATILIZATION FACTOR (VF)	ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME		RAE	RME		RAE	RME
cis-1,2-Dichloroethene	0.315	3.2	3140	2.0E-05	2.0E-04	1.0E-02	2E-03	2E-02
trans-1,2-Dichloroethene	0.00474	0.00611	2510	3.7E-07	4.8E-07	2.0E-02	2E-05	2E-05
Tetrachloroethene	20.5	200	2760	1.5E-03	1.4E-02	1.0E-02	1E-01	1E+00
1,1,2-Trichloroethane	0.00318	0.00323	7020	8.9E-08	9.0E-08	4.0E-03	2E-05	2E-05
Trichloroethene	0.0211	0.0428	3520	1.2E-06	2.4E-06	6.0E-03	2E-04	4E-04
TOTAL							1E-01	1E+00

MCDONNELL DOUGLAS

FACILITY/MAINTENACNE WORKER
NONCARCINOGENIC RISKS
SURFACE WATER INGESTION PATHWAY

COLDWATER CREEK

CONSTITUENT	SURFACE WATER EXPOSURE CONCENTRATION (mg/L)		ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME	RAE	RME		RAE	RME
Benzene	8.10E-33	1.70E-32	9.5E-37	2.0E-36	1.7E-03	6E-34	1E-33
1,1-Dichloroethene	4.70E-74	1.20E-73	5.5E-78	1.4E-77	9.0E-03	6E-76	2E-75
cis-1,2-Dichloroethene	4.40E-15	1.20E-14	5.2E-19	1.4E-18	1.0E-02	5E-17	1E-16
trans-1,2-Dichloroethene	1.00E-17	2.10E-17	1.2E-21	2.5E-21	2.0E-02	6E-20	1E-19
Tetrachloroethene	7.00E-30	1.80E-29	8.2E-34	2.1E-33	1.0E-02	8E-32	2E-31
Toluene	6.9E-104	2.1E-103	8.1E-108	2.5E-107	2.0E-01	4E-107	1E-106
1,1,2-Trichloroethane	1.10E-32	3.30E-32	1.3E-36	3.9E-36	4.0E-03	3E-34	1E-33
Trichloroethene	8.00E-20	2.20E-19	9.4E-24	2.6E-23	6.0E-03	2E-21	4E-21
Vinyl Chloride	1.00E-15	2.90E-15	1.2E-19	3.4E-19	NA	NC	NC
TOTAL						5E-17	1E-16

MCDONNELL DOUGLAS

FACILITY/MAINTENANCE WORKER
NONCARCINOGENIC RISKS
SURFACE WATER DERMAL ABSORPTION PATHWAY

COLDWATER CREEK

CONSTITUENT	SURFACE WATER EXPOSURE CONCENTRATION (mg/L)		DERMAL ABSORBED DOSE (DA)	ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME		RAE	RME		RAE	RME
Benzene	8.10E-33	1.70E-32	5.27E-02	5.0E-36	1.1E-35	1.6E-03	3E-33	7E-33
1,1-Dichloroethene	4.70E-74	1.20E-73	4.27E-02	2.4E-77	6.0E-77	9.0E-03	3E-75	7E-75
cis-1,2-Dichloroethene	4.40E-15	1.20E-14	2.68E-02	1.4E-18	3.8E-18	1.0E-02	1E-16	4E-16
trans-1,2-Dichloroethene	1.00E-17	2.10E-17	2.68E-02	3.1E-21	6.6E-21	2.0E-02	2E-19	3E-19
Tetrachloroethene	7.00E-30	1.80E-29	1.78E-01	1.5E-32	3.8E-32	1.0E-02	1E-30	4E-30
Toluene	6.9E-104	2.1E-103	1.17E-01	9.5E-107	2.9E-106	2.0E-01	5E-106	1E-105
1,1,2-Trichloroethane	1.10E-32	3.30E-32	2.64E-02	3.4E-36	1.0E-35	4.0E-03	9E-34	3E-33
Trichloroethene	8.00E-20	2.20E-19	4.97E-02	4.7E-23	1.3E-22	6.0E-03	8E-21	2E-20
Vinyl Chloride	1.00E-15	2.90E-15	1.76E-02	2.1E-19	6.0E-19	NA	NC	NC
TOTAL							1E-16	4E-16

MCDONNELL DOUGLAS

FUTURE FACILITY WORKER SCENARIO
CARCINOGENIC RISKS
SOIL INGESTION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		ABSORPTION EFFICIENCY (AEi)	ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME		RAE	RME		RAE	RME
Tetrachloroethene	20.5	200	1	3.6E-06	3.5E-05	5.2E-02	2E-07	2E-06
1,1,2-Trichloroethene	0.00318	0.00323	1	5.6E-10	5.6E-10	5.7E-02	3E-11	3E-11
Trichloroethene	0.0211	0.0428	1	3.7E-09	7.5E-09	1.1E-02	4E-11	8E-11
TOTAL							2E-07	2E-06

MCDONNELL DOUGLAS

FUTURE FACILITY WORKER SCENARIO
CARCINOGENIC RISKS
SOIL DERMAL ABSORPTION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		DERMAL ABSORPTION FACTOR	ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME	(ABS)	RAE	RME		RAE	RME
Tetrachloroethene	20.5	200	0.03	1.1E-05	1.0E-04	5.2E-02	6E-07	5E-06
1,1,2-Trichloroethene	0.00318	0.00323	0.1	5.6E-09	5.6E-09	5.7E-02	3E-10	3E-10
Trichloroethene	0.0211	0.0428	0.0005	1.8E-10	3.7E-10	1.1E-02	2E-12	4E-12
TOTAL							6E-07	5E-06

MCDONNELL DOUGLAS

FUTURE FACILITY WORKER SCENARIO
CARCINOGENIC RISKS
SOIL DUST INHALATION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME	RAE	RME		RAE	RME
Tetrachloroethene	20.5	200	1.1E-09	1.1E-08	2.0E-03	2E-12	2E-11
1,1,2-Trichloroethene	0.00318	0.00323	1.7E-13	1.7E-13	5.7E-02	1E-14	1E-14
Trichloroethene	0.0211	0.0428	1.1E-12	2.3E-12	6.0E-03	7E-15	1E-14
TOTAL						2E-12	2E-11

MCDONNELL DOUGLAS

FUTURE FACILITY WORKER SCENARIO
CARCINOGENIC RISKS
SOIL VAPOR INHALATION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		VOLATILIZATION FACTOR (VF)	ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME		RAE	RME		RAE	RME
Tetrachloroethene	20.5	200	2760	5.2E-04	5.1E-03	2.0E-03	1E-06	1E-05
1,1,2-Trichloroethene	0.00318	0.00323	7020	3.2E-08	3.2E-08	5.7E-02	2E-09	2E-09
Trichloroethene	0.0211	0.0428	3520	4.2E-07	8.5E-07	6.0E-03	3E-09	5E-09
TOTAL							1E-06	1E-05

MCDONNELL DOUGLAS

FACILITY/MAINTENANCE WORKER
CARCINOGENIC RISKS
SURFACE WATER INGESTION PATHWAY

COLDWATER CREEK

CONSTITUENT	SURFACE WATER EXPOSURE CONCENTRATION (mg/L)		ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME	RAE	RME		RAE	RME
Benzene	8.1E-33	1.7E-32	3.4E-37	7.1E-37	2.9E-02	1E-38	2E-38
1,1-Dichloroethene	4.7E-74	1.2E-73	2.0E-78	5.0E-78	6.0E-01	1E-78	3E-78
Tetrachloroethene	7.0E-30	1.8E-29	2.9E-34	7.5E-34	5.2E-02	2E-35	4E-35
1,1,2-Trichloroethane	1.1E-32	3.3E-32	4.6E-37	1.4E-36	5.7E-02	3E-38	8E-38
Trichloroethene	8.0E-20	2.2E-19	3.4E-24	9.2E-24	1.1E-02	4E-26	1E-25
Vinyl Chloride	1.0E-15	2.9E-15	4.2E-20	1.2E-19	1.9E+00	8E-20	2E-19
TOTAL						8E-20	2E-19

MCDONNELL DOUGLAS

FACILITY/MAINTENANCE WORKER
CARCINOGENIC RISKS
SURFACE WATER DERMAL ABSORPTION PATHWAY

COLDWATER CREEK

CONSTITUENT	SURFACE WATER EXPOSURE CONCENTRATION (mg/L)		DERMAL ABSORBED DOSE (DA)	ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME		RAE	RME		RAE	RME
Benzene	8.1E-33	1.7E-32	5.27E-02	1.8E-36	3.8E-36	3.1E-02	6E-38	1E-37
1,1-Dichloroethene	4.7E-74	1.2E-73	4.27E-02	8.4E-78	2.1E-77	6.0E-01	5E-78	1E-77
Tetrachloroethene	7.0E-30	1.8E-29	1.78E-01	5.2E-33	1.3E-32	5.2E-02	3E-34	7E-34
1,1,2-Trichloroethane	1.1E-32	3.3E-32	2.64E-02	1.2E-36	3.7E-36	5.7E-02	7E-38	2E-37
Trichloroethene	8.0E-20	2.2E-19	4.97E-02	1.7E-23	4.6E-23	1.1E-02	2E-25	5E-25
Vinyl Chloride	1.0E-15	2.9E-15	1.76E-02	7.4E-20	2.1E-19	1.9E+00	1E-19	4E-19
TOTAL							1E-19	4E-19

MCDONNELL DOUGLAS

FUTURE CONSTRUCTION/UTILITY WORKER SCENARIO
NONCARCINOGENIC RISKS
SOIL INGESTION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		ABSORPTION EFFICIENCY (AEi)	ESTIMATED DAILY INTAKE (mg/kg/day)		SUBCHRONIC REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME		RAE	RME		RAE	RME
cis-1,2-Dichloroethene	0.315	3.2	1.0	1.8E-07	1.8E-06	1.0E-01	2E-06	2E-05
trans-1,2-Dichloroethene	0.00474	0.00611	1.0	2.7E-09	3.4E-09	2.0E-01	1E-08	2E-08
Tetrachloroethene	20.5	200	1.0	1.2E-05	1.1E-04	1.0E-01	1E-04	1E-03
1,1,2-Trichloroethane	0.00318	0.00323	1.0	1.8E-09	1.8E-09	4.0E-02	4E-08	5E-08
Trichloroethene	0.0211	0.0428	1.0	1.2E-08	2.4E-08	6.0E-03	2E-06	4E-06
TOTAL							1E-04	1E-03

MCDONNELL DOUGLAS

FUTURE CONSTRUCTION/UTILITY WORKER SCENARIO
NONCARCINOGENIC RISKS
SOIL DERMAL ABSORPTION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		DERMAL ABSORPTION FACTOR	ESTIMATED DAILY INTAKE (mg/kg/day)		SUBCHRONIC REFERENCE DOSE	HAZARD INDEX	
	RAE	RME	(ABS)	RAE	RME	(mg/kg/day)	RAE	RME
cis-1,2-Dichloroethene	0.315	3.2	0.3	5.5E-07	5.6E-06	1.0E-01	6E-06	6E-05
trans-1,2-Dichloroethene	0.00474	0.00611	0.1	2.8E-09	3.6E-09	2.0E-01	1E-08	2E-08
Tetrachloroethene	20.5	200	0.03	3.6E-06	3.5E-05	1.0E-01	4E-05	4E-04
1,1,2-Trichloroethane	0.00318	0.00323	0.1	1.9E-09	1.9E-09	4.0E-02	5E-08	5E-08
Trichloroethene	0.0211	0.0428	0.0005	6.2E-11	1.3E-10	6.0E-03	1E-08	2E-08
TOTAL							4E-05	4E-04

MCDONNELL DOUGLAS

FUTURE CONSTRUCTION/UTILITY WORKER SCENARIO
NONCARCINOGENIC RISKS
SOIL DUST INHALATION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		ESTIMATED DAILY INTAKE (mg/kg/day)		SUBCHRONIC REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME	RAE	RME		RAE	RME
cis-1,2-Dichloroethene	0.315	3.2	7.8E-12	8.0E-11	1.0E-02	8E-10	8E-09
trans-1,2-Dichloroethene	0.00474	0.00611	1.2E-13	1.5E-13	2.0E-02	6E-12	8E-12
Tetrachloroethene	20.5	200	5.1E-10	5.0E-09	1.0E-02	5E-08	5E-07
1,1,2-Trichloroethane	0.00318	0.00323	7.9E-14	8.0E-14	4.0E-03	2E-11	2E-11
Trichloroethene	0.0211	0.0428	5.3E-13	1.1E-12	6.0E-03	9E-11	2E-10
TOTAL						5E-08	5E-07

MCDONNELL DOUGLAS

FUTURE CONSTRUCTION/UTILITY WORKER SCENARIO
NONCARCINOGENIC RISKS
SOIL VAPOR INHALATION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		VOLATILIZATION FACTOR (VF)	ESTIMATED DAILY INTAKE (mg/kg/day)		SUBCHRONIC REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME		RAE	RME		RAE	RME
cis-1,2-Dichloroethene	0.315	3.2	312	3.3E-05	3.4E-04	1.0E-02	3E-03	3E-02
trans-1,2-Dichloroethene	0.00474	0.00611	250	6.2E-07	8.0E-07	2.0E-02	3E-05	4E-05
Tetrachloroethene	20.5	200	274	2.5E-03	2.4E-02	1.0E-02	2E-01	2E+00
1,1,2-Trichloroethane	0.00318	0.00323	697	1.5E-07	1.5E-07	4.0E-03	4E-05	4E-05
Trichloroethene	0.0211	0.0428	350	2.0E-06	4.0E-06	6.0E-03	3E-04	7E-04
TOTAL							2E-01	2E+00

MCDONNELL DOUGLAS

FUTURE CONSTRUCTION/UTILITY WORKER SCENARIO
NONCARCINOGENIC RISKS
GROUNDWATER DERMAL ABSORPTION PATHWAY

SWMU 17

CONSTITUENT	GROUNDWATER EXPOSURE CONCENTRATION (mg/L)		DERMAL ABSORBED DOSE (DA)	ESTIMATED DAILY INTAKE (mg/kg/day)		SUBCHRONIC REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME		RAE	RME		RAE	RME
Benzene	0.00558	0.0118	5.27E-02	3.5E-06	7.3E-06	1.6E-03	2E-03	5E-03
1,1-Dichloroethene	0.0391	0.0963	4.27E-02	2.0E-05	4.8E-05	9.0E-03	2E-03	5E-03
cis-1,2-Dichloroethene	18.9	50.5	2.68E-02	5.9E-03	1.6E-02	1.0E-01	6E-02	2E-01
trans-1,2-Dichloroethene	0.0449	0.09	2.68E-02	1.4E-05	2.8E-05	2.0E-01	7E-05	1E-04
Tetrachloroethene	44.8	113	1.78E-01	9.4E-02	2.4E-01	1.0E-01	9E-01	2E+00
Toluene	2.09	6.29	1.17E-01	2.9E-03	8.6E-03	2.0E+00	1E-03	4E-03
1,1,2-Trichloroethane	0.0504	0.147	2.64E-02	1.6E-05	4.6E-05	4.0E-02	4E-04	1E-03
Trichloroethene	26.5	72.4	4.97E-02	1.5E-02	4.2E-02	6.0E-03	3E+00	7E+00
Vinyl Chloride	4.37	12.7	1.76E-02	9.0E-04	2.6E-03	NA	NC	NC
TOTAL							4E+00	1E+01

MCDONNELL DOUGLAS

FUTURE CONSTRUCTION/UTILITY WORKER SCENARIO
CARCINOGENIC RISKS
SOIL INGESTION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		ABSORPTION EFFICIENCY (AEi)	ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME		RAE	RME		RAE	RME
Tetrachloroethene	20.5	200	1	1.7E-07	1.6E-06	5.2E-02	9E-09	8E-08
1,1,2-Trichloroethene	0.00318	0.00323	1	2.6E-11	2.6E-11	5.7E-02	1E-12	1E-12
Trichloroethene	0.0211	0.0428	1	1.7E-10	3.4E-10	1.1E-02	2E-12	4E-12
TOTAL							9E-09	8E-08

MCDONNELL DOUGLAS

FUTURE CONSTRUCTION/UTILITY WORKER SCENARIO
CARCINOGENIC RISKS
SOIL DERMAL ABSORPTION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		DERMAL ABSORPTION FACTOR	ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME	(ABS)	RAE	RME		RAE	RME
Tetrachloroethene	20.5	200	0.03	5.2E-08	5.0E-07	5.2E-02	3E-09	3E-08
1,1,2-Trichloroethene	0.00318	0.00323	0.1	2.7E-11	2.7E-11	5.7E-02	2E-12	2E-12
Trichloroethene	0.0211	0.0428	0.0005	8.8E-13	1.8E-12	1.1E-02	1E-14	2E-14
TOTAL							3E-09	3E-08

MCDONNELL DOUGLAS

FUTURE CONSTRUCTION/UTILITY WORKER SCENARIO
CARCINOGENIC RISKS
SOIL DUST INHALATION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME	RAE	RME		RAE	RME
Tetrachloroethene	20.5	200	7.3E-12	7.1E-11	2.0E-03	1E-14	1E-13
1,1,2-Trichloroethene	0.00318	0.00323	1.1E-15	1.1E-15	5.7E-02	6E-17	7E-17
Trichloroethene	0.0211	0.0428	7.5E-15	1.5E-14	6.0E-03	5E-17	9E-17
TOTAL						1E-14	1E-13

MCDONNELL DOUGLAS

FUTURE CONSTRUCTION/UTILITY WORKER SCENARIO
CARCINOGENIC RISKS
SOIL VAPOR INHALATION PATHWAY

SWMU 17

CONSTITUENT	SOIL EXPOSURE CONCENTRATION (mg/kg)		VOLATILIZATION FACTOR (VF)	ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME		RAE	RME		RAE	RME
Tetrachloroethene	20.5	200	274	3.5E-05	3.4E-04	2.0E-03	7E-08	7E-07
1,1,2-Trichloroethene	0.00318	0.00323	697	2.1E-09	2.2E-09	5.7E-02	1E-10	1E-10
Trichloroethene	0.0211	0.0428	350	2.8E-08	5.7E-08	6.0E-03	2E-10	3E-10
TOTAL							7E-08	7E-07

MCDONNELL DOUGLAS

FUTURE CONSTRUCTION/UTILITY WORKER SCENARIO
CARCINOGENIC RISKS
GROUNDWATER DERMAL ABSORPTION PATHWAY

SWMU 17

CONSTITUENT	GROUNDWATER EXPOSURE CONCENTRATION (mg/L)		DERMAL ABSORBED DOSE (DA)	ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME		RAE	RME		RAE	RME
Benzene	0.00558	0.0118	5.27E-02	4.9E-08	1.0E-07	3.1E-02	2E-09	3E-09
1,1-Dichloroethene	0.0391	0.0963	4.27E-02	2.8E-07	6.9E-07	6.0E-01	2E-07	4E-07
Tetrachloroethene	44.8	113	1.78E-01	1.3E-03	3.4E-03	5.2E-02	7E-05	2E-04
1,1,2-Trichloroethane	0.0504	0.147	2.64E-02	2.2E-07	6.5E-07	5.7E-02	1E-08	4E-08
Trichloroethene	26.5	72.4	4.97E-02	2.2E-04	6.0E-04	1.1E-02	2E-06	7E-06
Vinyl Chloride	4.37	12.7	1.76E-02	1.3E-05	3.7E-05	1.9E+00	2E-05	7E-05
TOTAL							1E-04	3E-04

MCDONNELL DOUGLAS

RECREATIONAL SCENARIO - ADULT
NONCARCINOGENIC RISKS
SURFACE WATER INGESTION PATHWAY

COLDWATER CREEK

CONSTITUENT	SURFACE WATER EXPOSURE CONCENTRATION (mg/L)		ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME	RAE	RME		RAE	RME
Benzene	8.10E-33	1.70E-32	2.5E-36	5.2E-36	1.7E-03	1E-33	3E-33
1,1-Dichloroethene	4.70E-74	1.20E-73	1.4E-77	3.7E-77	9.0E-03	2E-75	4E-75
cis-1,2-Dichloroethene	4.40E-15	1.20E-14	1.3E-18	3.7E-18	1.0E-02	1E-16	4E-16
trans-1,2-Dichloroethene	1.00E-17	2.10E-17	3.1E-21	6.4E-21	2.0E-02	2E-19	3E-19
Tetrachloroethene	7.00E-30	1.80E-29	2.1E-33	5.5E-33	1.0E-02	2E-31	5E-31
Toluene	6.9E-104	2.1E-103	2.1E-107	6.4E-107	2.0E-01	1E-106	3E-106
1,1,2-Trichloroethane	1.10E-32	3.30E-32	3.4E-36	1.0E-35	4.0E-03	8E-34	3E-33
Trichloroethene	8.00E-20	2.20E-19	2.4E-23	6.7E-23	6.0E-03	4E-21	1E-20
Vinyl Chloride	1.00E-15	2.90E-15	3.1E-19	8.9E-19	NA	NC	NC
TOTAL						1E-16	4E-16

MCDONNELL DOUGLAS

RECREATIONAL SCENARIO - ADULT
NONCARCINOGENIC RISKS
SURFACE WATER DERMAL ABSORPTION PATHWAY

COLDWATER CREEK

CONSTITUENT	SURFACE WATER EXPOSURE CONCENTRATION (mg/L)		DERMAL ABSORBED DOSE (DA)	ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME		RAE	RME		RAE	RME
Benzene	8.10E-33	1.70E-32	5.27E-02	1.3E-35	2.7E-35	1.6E-03	8E-33	2E-32
1,1-Dichloroethene	4.70E-74	1.20E-73	4.27E-02	6.1E-77	1.6E-76	9.0E-03	7E-75	2E-74
cis-1,2-Dichloroethene	4.40E-15	1.20E-14	2.68E-02	3.6E-18	9.8E-18	1.0E-02	4E-16	1E-15
trans-1,2-Dichloroethene	1.00E-17	2.10E-17	2.68E-02	8.2E-21	1.7E-20	2.0E-02	4E-19	9E-19
Tetrachloroethene	7.00E-30	1.80E-29	1.78E-01	3.8E-32	9.8E-32	1.0E-02	4E-30	1E-29
Toluene	6.9E-104	2.1E-103	1.17E-01	2.5E-106	7.5E-106	2.0E-01	1E-105	4E-105
1,1,2-Trichloroethane	1.10E-32	3.30E-32	2.64E-02	8.9E-36	2.7E-35	4.0E-03	2E-33	7E-33
Trichloroethene	8.00E-20	2.20E-19	4.97E-02	1.2E-22	3.3E-22	6.0E-03	2E-20	6E-20
Vinyl Chloride	1.00E-15	2.90E-15	1.76E-02	5.4E-19	1.6E-18	NA	NC	NC
TOTAL							4E-16	1E-15

MCDONNELL DOUGLAS

RECREATIONAL SCENARIO - CHILD
NONCARCINOGENIC RISKS
SURFACE WATER INGESTION PATHWAY

COLDWATER CREEK

CONSTITUENT	SURFACE WATER EXPOSURE CONCENTRATION (mg/L)		ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME	RAE	RME		RAE	RME
Benzene	8.10E-33	1.70E-32	1.2E-35	2.4E-35	1.7E-03	7E-33	1E-32
1,1-Dichloroethene	4.70E-74	1.20E-73	6.7E-77	1.7E-76	9.0E-03	7E-75	2E-74
cis-1,2-Dichloroethene	4.40E-15	1.20E-14	6.3E-18	1.7E-17	1.0E-02	6E-16	2E-15
trans-1,2-Dichloroethene	1.00E-17	2.10E-17	1.4E-20	3.0E-20	2.0E-02	7E-19	1E-18
Tetrachloroethene	7.00E-30	1.80E-29	1.0E-32	2.6E-32	1.0E-02	1E-30	3E-30
Toluene	6.9E-104	2.1E-103	9.8E-107	3.0E-106	2.0E-01	5E-106	2E-105
1,1,2-Trichloroethane	1.10E-32	3.30E-32	1.6E-35	4.7E-35	4.0E-03	4E-33	1E-32
Trichloroethene	8.00E-20	2.20E-19	1.1E-22	3.1E-22	6.0E-03	2E-20	5E-20
Vinyl Chloride	1.00E-15	2.90E-15	1.4E-18	4.1E-18	NA	NC	NC
TOTAL						6E-16	2E-15

MCDONNELL DOUGLAS

RECREATIONAL SCENARIO - CHILD
NONCARCINOGENIC RISKS
SURFACE WATER DERMAL ABSORPTION PATHWAY

COLDWATER CREEK

CONSTITUENT	SURFACE WATER EXPOSURE CONCENTRATION (mg/L)		DERMAL ABSORBED DOSE (DA)	ESTIMATED DAILY INTAKE (mg/kg/day)		REFERENCE DOSE (mg/kg/day)	HAZARD INDEX	
	RAE	RME		RAE	RME		RAE	RME
Benzene	8.10E-33	1.70E-32	5.27E-02	2.9E-35	6.1E-35	1.6E-03	2E-32	4E-32
1,1-Dichloroethene	4.70E-74	1.20E-73	4.27E-02	1.4E-76	3.5E-76	9.0E-03	2E-74	4E-74
cis-1,2-Dichloroethene	4.40E-15	1.20E-14	2.68E-02	8.0E-18	2.2E-17	1.0E-02	8E-16	2E-15
trans-1,2-Dichloroethene	1.00E-17	2.10E-17	2.68E-02	1.8E-20	3.8E-20	2.0E-02	9E-19	2E-18
Tetrachloroethene	7.00E-30	1.80E-29	1.78E-01	8.4E-32	2.2E-31	1.0E-02	8E-30	2E-29
Toluene	6.9E-104	2.1E-103	1.17E-01	5.5E-106	1.7E-105	2.0E-01	3E-105	9E-105
1,1,2-Trichloroethane	1.10E-32	3.30E-32	2.64E-02	2.0E-35	5.9E-35	4.0E-03	5E-33	1E-32
Trichloroethene	8.00E-20	2.20E-19	4.97E-02	2.7E-22	7.4E-22	6.0E-03	4E-20	1E-19
Vinyl Chloride	1.00E-15	2.90E-15	1.76E-02	1.2E-18	3.5E-18	NA	NC	NC
TOTAL							8E-16	2E-15

MCDONNELL DOUGLAS

RECREATIONAL SCENARIO - LIFETIME
CARCINOGENIC RISKS
SURFACE WATER INGESTION PATHWAY

COLDWATER CREEK

CONSTITUENT	SURFACE WATER EXPOSURE CONCENTRATION (mg/L)		ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME	RAE	RME		RAE	RME
Benzene	8.1E-33	1.7E-32	1.8E-36	3.9E-36	2.9E-02	5E-38	1E-37
1,1-Dichloroethene	4.7E-74	1.2E-73	1.1E-77	2.7E-77	6.0E-01	6E-78	2E-77
Tetrachloroethene	7.0E-30	1.8E-29	1.6E-33	4.1E-33	5.2E-02	8E-35	2E-34
1,1,2-Trichloroethane	1.1E-32	3.3E-32	2.5E-36	7.5E-36	5.7E-02	1E-37	4E-37
Trichloroethene	8.0E-20	2.2E-19	1.8E-23	5.0E-23	1.1E-02	2E-25	5E-25
Vinyl Chloride	1.0E-15	2.9E-15	2.3E-19	6.6E-19	1.9E+00	4E-19	1E-18
TOTAL						4E-19	1E-18

MCDONNELL DOUGLAS

RECREATIONAL SCENARIO - LIFETIME
CARCINOGENIC RISKS
SURFACE WATER DERMAL ABSORPTION PATHWAY

COLDWATER CREEK

CONSTITUENT	SURFACE WATER EXPOSURE CONCENTRATION (mg/L)		DERMAL ABSORBED DOSE (DA)	ESTIMATED DAILY INTAKE (mg/kg/day)		CANCER SLOPE FACTOR $(mg/kg/day)^{-1}$	EXCESS LIFETIME CANCER RISK	
	RAE	RME		RAE	RME		RAE	RME
Benzene	8.1E-33	1.7E-32	5.27E-02	6.9E-36	1.5E-35	3.1E-02	2E-37	5E-37
1,1-Dichloroethene	4.7E-74	1.2E-73	4.27E-02	3.3E-77	8.3E-77	6.0E-01	2E-77	5E-77
Tetrachloroethene	7.0E-30	1.8E-29	1.78E-01	2.0E-32	5.2E-32	5.2E-02	1E-33	3E-33
1,1,2-Trichloroethane	1.1E-32	3.3E-32	2.64E-02	4.7E-36	1.4E-35	5.7E-02	3E-37	8E-37
Trichloroethene	8.0E-20	2.2E-19	4.97E-02	6.5E-23	1.8E-22	1.1E-02	7E-25	2E-24
Vinyl Chloride	1.0E-15	2.9E-15	1.76E-02	2.9E-19	8.3E-19	1.9E+00	5E-19	2E-18
TOTAL							5E-19	2E-18

MCDONNELL DOUGLAS

ECOLOGICAL RISK CHARACTERIZATION

SURFACE WATER PATHWAY

COLDWATER CREEK

CONSTITUENT	SURFACE WATER EXPOSURE CONCENTRATION (mg/L)		ECOLOGICAL TOXICITY BENCHMARK (mg/L)	ECOTOXICITY QUOTIENT	
	RAE	RME		RAE	RME
Benzene	8.10E-33	1.70E-32	4.5E-02	2E-31	4E-31
1,1-Dichloroethene	4.70E-74	1.20E-73	1.2E+00	4E-74	1E-73
cis-1,2-Dichloroethene	4.40E-15	1.20E-14	1.2E+00	4E-15	1E-14
trans-1,2-Dichloroethene	1.00E-17	2.10E-17	1.2E+00	9E-18	2E-17
Tetrachloroethene	7.00E-30	1.80E-29	1.2E-01	6E-29	2E-28
Toluene	6.9E-104	2.1E-103	1.3E-01	5E-103	2E-102
1,1,2-Trichloroethane	1.10E-32	3.30E-32	9.4E+00	1E-33	4E-33
Trichloroethene	8.00E-20	2.20E-19	3.5E-01	2E-19	6E-19
Vinyl Chloride	1.00E-15	2.90E-15	NA	NC	NC
TOTAL				4E-15	1E-14